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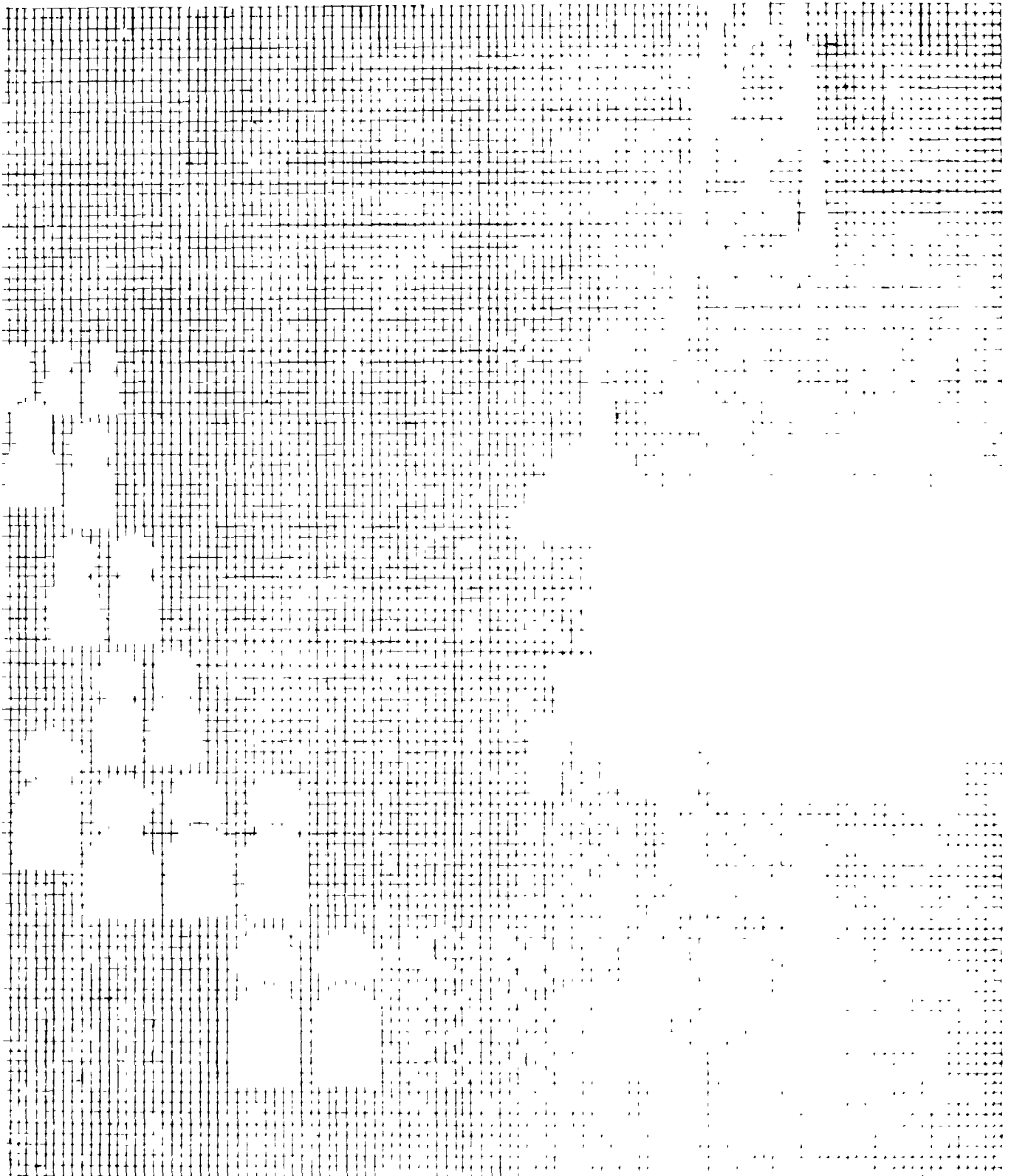
A dent on the rural birth rate can be made if a four-fold strategy is adopted–namely: (1) Special programme for female education right upto school level in neglected rural areas with the help of voluntary agencies; (2) Strict enforcement of the Prevention of Child Marriage Act with the help of voluntary agencies whose main function will be educating parents about the need for raising the age at marriage of girls and boys and inculcating the spirit of responsible parenthood; (3) Massive support to the Health Guide Scheme in order to realise the goal of Health for All by 2000 A.D. and propagation of family planning by doing the much needed health work in rural areas and thereby establishing the credibility of health and education in rural areas.

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Slimming down the figure

ALL OUR EFFORTS FOR DEVELOPMENT are directed towards one goal-the betterment of the life of people. That is, we plan for the vast population of a country of continental size. And what a combination of contrasting, widely varied mix of masses do we have! Besides the vertical divisions of "haves" and "have-nots" we have a number of sub-divisions among these two also. We find our population categorised into high, medium, low and no-income groups. There are people, based in one metropolis, who can afford to have breakfast at home, lunch at another metropolis, and fly back home for dinner in the cosy comforts of their mansions, the same day. There are people who have wherewithal to spend hundreds of thousands just for the decoration of their daughter's wedding. Vulgar display of wealth has been unfortunately accorded the symbol of status, and luxuries have been baptised as necessities. There is a fierce race going on among men of immense means to send their children to the most expensive schools, which may not necessarily be the best. But let us admit that "the best" has its own definition for different people.

Anyway, this is just one part of the story. T other part is not so bright and pleasing. The are many, belonging to lower middle class a low income groups, who, in spite of bei assured of two meals a day, and a roof o their head can ill afford to make the two en meet in the face of rising cost of living. B think of the plight of millions, both in cit and villages who have to pass their days a nights in abject poverty, in a state of indefin uncertainty. For them, the palatial buildings fully air-conditioned posh hotels, the nev ending rows of the latest models of cars, t roar of tractors in the countryside, ha hardly any meaning. Is it not an irony th those working on massive construction si all over, the country, laying brick by bri throughout the year, have no house of th own worth the name. Having labour hard to provide sound shelter to others, th go back to their dingy dwellings, unprotect by the vagaries of wind and weather. And, i not very surprising to know that farm work who sow the seed with the sweat of their t

and harvest the crop with their seasoned, experienced hands, have to live at the mercy of those who employ them ?

These are the hard facts before us. It would be better if we accept them with grace and try in right earnest to remove the glaring disparities that exist. The task is very difficult, becuase it is an outcome of an accumulation of problems over the years. But it is not impossible. There can be no two opinions that the ever-growing population in our country is getting increasingly unmanageable and if the pace of this reproductive growth is not checked in time we will gain the unenviable rank of the most populous nation on the globe. That is what the demographers say, and we have no valid reason to doubt their calculations. The economists are one in their view that the population has outpaced all the endeavours of planned progress. During the last four decades the number of schools, colleges, universities, hospitals, trains, industrial units, has doubled and trebled. But, so has the population. Thus we have a loud clamour for more seats in schools and colleges and for more beds in hospitals, for more jobs for the incr[illegible]
year after [illegible]
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Although our educational standards are very high and students of many developing countries are getting trained in our institutions, the spread of literacy has been slow. And, brain-drain is one of the by-products of over-population. Primary education, and particularly female education, perhaps, did not get the priority they deserved. The importance of literacy as an instrument of bringing down the rate of population growth would not escape the notice of the formulators of the forthcoming Eighth Plan. We have to slim down our population figure if our aim is to achieve an alround development.

Chief Editor

Increasing population- Impediment to development

Prof. Bhabatosh Datta

Is a large population an asset or a liability? It could be an asset for countries where labour situation requires a high rate of population growth But, in India, says eminent economist Prof. Bhabatosh Datta, increasing population produces a variety of impediments to development. According to him, a major share of development resources is absorbed by the requirements of just maintaining the essential supplies and services. While subscribing to the view that the current family planning programmes have been useful to some extent in bringing down the birthrate, he has laid stress on education, which would be of great help in changing the attitude of people. The long-term remedy, in his opinion, is the education of women and illiterate adults. The desire to have a better standard of life is universal and education will bring home the message that a smaller family is a happier family.

WHEN IN 1938 RADHAKAMAL MUKHERJEE gave his book on population the title Food Planning for 400 Millions, he was criticised for being an alarmist He based his projection on the rate of growth of the numbers between 1921 and 1931, the first decade since 1872 in which there had not been any serious famine or epidemic When the 1941 census revealed a total population of 388 8 million, it was realised that Mukherjee was only 2 8 per cent off the mark These totals were for the whole sub-continent, which now comprise India, Pakistan and Bangladesh Today it is instructive to note that the total population of these three states together is more than 1 billion The combined growth rate has been a little over 2 per cent per year, a rate which has become almost constant over the whole period

Independent India started its development planning in 1951 with a total population of 361 million. Economists and planners all realised that the first impact of any development efforts, particularly relating to the health services, would be on the death rate, and that it would take some time to bring about a significant decline in the rate of birth During this period of slowly falling birth rate and sharply falling death rate, the survival rate would increase and the total poupulation would grow at a disturbingly hig[illegible] rate It was however optimistically expected that th[illegible] explosive stage would not last for more than a deca[illegible] or so and that thereafter the population growth ra[illegible] would slow down It was often assumed that th[illegible] overall growth rate of the population would n[illegible] exceed 1 5 per cent per year and that it would lat[illegible] come down to nearabout 1 2 per cent

The rising grapl[illegible]

This expectation has not been realised The deat[illegible] rate fell appreciably to 12 per thousand by 198[illegible] compared to 20 per thousand in 1965, while the birt[illegible] rate, even after a substantial fall from 45 per thousan[illegible] since 1965, still remained quite high at 32 pe[illegible] thousand in 1986 The gap between the two rate[illegible] which was 25 per thousand in 1965 was still high at 2[illegible] per thousand in 1986 One result of the decline in th[illegible] death rate (and particularly in the rate of infa[illegible] mortality) has been an increase in the averag[illegible] expectation of life at birth to 57 years against only 2[illegible] years in the 1930's though this is still much below th[illegible] level in the developed states and even below that [illegible] Sri Lanka In India, a large population with a fairl[illegible] high life expectancy has created serious problem[illegible]

involving not only size, but also the age composition The age-composition is a material factor in determining consumption levels and saving.

Against 361 million in 1951, the Indian population was 684 million in 1981 If it is assumed that the rate of growth experienced during 1971-81 will continue, the Indian population will be 836 million in 1990 and 854 million in 1991 when the next decennial census becomes due Even if the rate of growth falls somewhat in the next decade the population at the turn of the century will be about one billion

"It is to the interest of a state to have a large population, because that will be a big factor in the distribution of financial resources and plan assistance. In 1961, the Chief Minister of a state openly criticised the Chief Minister of another state for deliberately encouraging the census staff to inflate the records."

According to the World Bank projections (based on many assumptions of doubtful validity), the net reproduction rate (the number of daughters, or potential mothers, a new-born girl will bear during her life-time, assuming fixed age-specific fertility and mortality rates) will reach unity in the year 2010, but the 'population momentum' will continue to exert its pressure even after that The hypothetical "stationary population" will be reached in India at 1 698 billion towards the middle of the 22nd century

Dynamics of population

Much of this type of long term forecasting is pointless, first because no one can anticipate how the long run forces will change and secondly because the assumptions are extremely rigid By the time the projected results would become effective, drastic positive checks of the Malthusian variety may solve all problems What is more important is the dynamics of the population in the next five, ten or twenty years, about which some meaningful economic assumptions can be made The first point to note here is that if the Indian population had grown at the anticipated average annual rate of 1 5 per cent, it would have been 564 million in 1981, i e about 17 5 per cent less than the actual census total of 684 million Continuing at that rate, the population would be 626 million in 1989 One can assume that a smaller population will not reduce the net national production in India. On that assumption, the national income per capita now would have been about Rs. 4500 (at current prices) instead of nearly Rs 3200.

There are countries where the labour situation does require a high rate of population growth, but even in these countries improvement in technology is reducing the demand for labour In India, an increasing population produces a wide variety of impediments to development Consumption needs increase and the saving rate is affected The outlays necessary for the social services like primary education, high schools, health centres, hospitals etc increase beyond what is estimated at the beginning of any planning period Urban overcrowding creates management problems, as well as social problems Housing shortage becomes intractable in both urban and rural areas In short, one can say that a large part of the development resources available is absorbed by the requirement of just maintaining the essential supplies and services The balance available for net development becomes seriously eroded The effect on development is not always apparent in the official statistics because the excess population presses into the service sector the output from which is largely estimated by rough and ready methods The national material production per capita does not rise much above the long run average

There have been many sided efforts towards reducing the birth rates The total outlay has not been inconsiderable But when it is seen that in the largest state of India, Uttar Pradesh which houses some [illegible] per cent of the Indian population the birth rate is still about [illegible] per 1000 it [illegible] that the family welfare efforts through sterilisation and the like may not produce perceptible results in the remaining years of the present century

Distribution [illegible]

There is here [illegible] which sometimes assumes a [illegible] from the [illegible] is a vital fa[illegible] and financ[illegible] have a lar[illegible] factor in t[illegible] plan assist[illegible] openly criti[illegible]

"In India, an increasing population produces a wide variety of impediments to development. Consumption needs increase and the saving rate is affected. The outlays necessary for the social services -like primary education, high schools, health centres, hospitals etc-increase beyond what is estimated at the beginning of any planning period."

for deliberately encouraging the census staff to inflate the records The problem assumed such dimensions that the central government had to freeze the 'population variable' at the 1971 level in respect of weightage for Finance Commission awards and Plan assistance

The inter-state disparities in the rates of population growth and in density often arise from refugee movements and internal migration Changes in state boundaries may also be an important factor but retrospective adjustments are made in the Census

statistics. Between 1951 and 1981, the total Indian population increased by 89 5 per cent (i e at a compound rate of 2 15 per cent year), while in Punjab the 30 year increase was by 88 per cent and in Assam by about 150 per cent The most remarkable case was Tripura where the population increased threefold in 30 years. These desparate growth rates affect the economic development process seriously In Punjab, the economy has been maintained at a high level because of efficient agriculture, but in Assam, the pressures have affected development The problems of internal migration and of inflows of migrants from neighbouring countries deserve special attention from the central government

Development covers a wider ground than economic growth and one of the crucial lines of development is the spread of education, which is also an active agent for creating the right attitudes for population controls The accepted family planning measures have to go on, with adequate safeguards against ruthless implementation and abuse experience shows that, with all sterilisation a other measures, it will be many decades before th are any major effects on the birth rate The best lo term remedy is education of women and illiter adults If women can be persuaded to accept t message of family planning, the task is practic done It is not much use telling young school stude about small families, but expertly-designed ad education schemes can produce quick results economic development programme which create desire for a higher standard of life, together with educational programme that creates the rig attitudes and provides the necessary information w build the setting into which all family planni programmes can be fitted The first stage of econom development which accelerates population grow should now be made to reach its end At the seco stage, it is development that creates the conditio and the ambience for controlling the numbers T coming of this second stage has to be expedited wi all seriousness □□□

"In India, a large population with a fairly high life expectancy has created serious problems, involving not only size, but also the age composition. The age-composition is a material factor in determining consumption levels and saving."

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Population-contributing to production or consumption

Dr. V.K.R.V. Rao

Do we have "to plan a population" or "plan for a population"? A big debate is going on among planners and economists. The population of a country consists of those who produce and those who consume. The trouble starts only when the number of consumers begins to exceed that of the producers. We are facing a situation like this today. It is not that we have less number of people belonging to the working-age group. We hav less job opportunities to put these people on work so that they may be kept engaged in productive activities. Eminent social thinker and senior economist Dr. Rao has discussed at length on this subject in the following piece. He suggests that the rate of employment should be increased by such a figure as will do away with joblessness among the working age group. He also advocates that the growth of population should be brought down by giving women a more active social life instead of merely bearing and rearing children. This, according to him, calls for a huge media campaign to make people understand the economic consequences of having more children and the relation between limiting the number of children per family. He concludes that population growth and economic development do not play an antagonistic role with each other, rather they help each other in bringing about the necessary economic growth.

POPULATION IS A MAJOR INGREDIENT of the whole process of development, the other three factors concerned being natural resources, capital and the use of science and technology Population referred to here is not the total population of the country including the old and the young, but those of working age who can function as active participants in the process of economic growth and development, and this consists of the population of age group 15 to 60 In actual fact, in a number of countries including India, children below the age of 15 are also made to function as producers and people above 60 do not completely retire but take part in productive activities, but when we discuss the macro figure of economic growth, and per capita growth we use not only the working population but the total population in order to arrive at the per capita figure of national income, the per capita figure taking into account not only the working population but also the non-working population The working population represents a larger contributor to national income than any one of the other three ingredients mentioned earlier

The dual role of population

Normally economic growth is treated in terms c per capita growth at constant prices, being the join result of growth of income and the growth n population, but population plays a dual role those o working age contributing to production in addition t their consumption, and those of non-working age contributing to consumption and not to production but since both production and consumption had to b involved in any discussion of national income, w have to take into account not only growth in th working population but also in the non-working ou consuming population Even the working populatio is of economic significance when it actually does tak part in production either by way of self-employmen or hire-employment, but to the extent that th working population is unemployed and does no contribute to production they come in the sam category as the non-working population mentione earlier In the case of India, the working populatio has a large element of unemployment and makes a m

contribution to economic growth, while it accounts for part of the consumption in addition to the consumption of the people of non-working age. The effect of this population growth including working and non-working age is shown by the difference in terms of growth between the index of net national product at 1970-71 prices and the index number of per capita national product at 1950-51 being equal to 100. Thus, we find that while the NNP at constant prices has gone up to 283.4 in 80-81, the index number of per capita national product has only gone upto 149.8, the difference in the index number being accounted for by the growth of non-working population and also

"In the case of India, the working poulation has a large element of unemployment and makes a nil contribution to economic growth, while it accounts for part of the consumption in addition to the consumption of the people of non-working age"

that of non employed among the working-age population. It is seen therefore that the population both of working and non-working age constitute factors that determine the per capita income.

Negative effect on development

In the case of India, there has been an increase in population in general and not only of working population but also of non-working population, in addition to which there has been a growth in the non-employed part of the working-age population. Therefore the connection between population growth and economic development can be positive or can be negative. In India, the growth of our population has had a negative effect on the target increase in national income, largely due on the one hand to the rise in the non-productive part of the population and the other, due to the unemployed among the working population. Thus, when we want to discuss the question of population and development, there are two aspects: the population growth including the non working population should not be allowed to increase beyond the desired per capita figure of national income which would mean availability to all the population of atleast a minimum level of living. The other role of population in development is the un-employed part of the working population who instead of functioning as producers, only function as consumers. If we want to bring about a positive connection between population and development, we have to see that the population growth including both working and non working segments does not exceed the limit of per capita national income, which could make for a resonable minimum level of living. This means, keeping the population growth at a level which keeps the total population static, the loss through deaths being made up by gains through increase of population from births. This means that the population has got to have a net reproduction rate to keep the total number stationary, and thus enable the fruits of development to accrue to the population including non-workers. In India, at the moment, the population growth is of the order of 1.9 to 2.00 per cent a year which very much exceed the net reproduction rate, and this makes for an increase in population including both working population and non-working population. Thus the increasing growth of population of the Indian demographic scenario is alarming with population practically doubling itself from 361.1 millions in 1951 to 685.2 millions in 1981, the rate of increase after that year being of the order of 1.9 percent. Taking the population projections given in the seventh five year plan document, the total population including workers and non-workers is expected to reach 986 million in 1996-2001, the people of working age rising to 60.8 percent of the total population from 55.5 percent in 1981-86. Thus at the end of 10 years from now, the economy has to bear the consumption load of 39.3 percent of the population in addition of course to that part of the working population which is un-employed. While there is no firm estimate of the share of non workers in the total working population employment exchange statistics where employment seekers could register themselves to await placement by the exchanges gives the number of applicants on the live registers, increasing from 5.1 million in 1971 to 26.3 million in 1985. While all this number need not necessarily be unemployed, but consist partly of persons registering themselves with the employment exchanges in the hope of getting better employment than what they currently have ...
number ...
employm...
millions

"Thus, a... economy ... 39.3 per c... course to that ... which is un-employed."

population. Thus if we want to bring about an appropriate connection between population and development, the population policy which has to be followed is:

1. Increase the rate of employment by such figure as will do away with unemployment among the population of working age. This should also include full time employment to those who are at the moment partially employed but account as employed in the demographic statistics of the country.

2. The growth of population should be brought down to a level which will keep the population steady at a level which of course would be higher than the present population but would not have a tendency to go on

increasing year after year as is the case at the moment

These two aspects of the demographic situation can be taken care of if the country is able to give employment to all the unemployed number among the working population, and the fertility rate goes down to the level of the rate of reproduction (net reproduction rate) which means of course a steep decline in the rate of population growth

chasing the objective of full employment

Increasing employment to a level of full employment to all the population of working age requires both capital accumulation and increase in productivity by using a proper mix of science and technology, and opening out the domestic market by

"Coercion is obviously out of the question as was seen from the public reaction to the attempt made by the Government in some places to compel the population to undergo sterilisation as part of the population programme."

increasing wage employment, and the external market by increasing competitive efficiency on the international field of selected export producing sectors of the economy A state of full employment is difficult to achieve even in the highly industrialised countries inspite of vast accumulation of capital and a population whose growth just represents the filling up of reduction through deaths

Full employment is accepted by the Indian Government as the desired goal of economic planning and there is wide-spread support for the thesis that the right to work should be brought in the list of fundamental rights guaranteed in the Constitution, which means that a policy of full employment is mandatory on the Government in power, if it is going to seek fulfilment of its obligations under the Constitution. The difficulties in the way of securing full employment in India are too well known to merit specific mention, but we could take up some of the major constraints For securing full employment in India, not only is there a need for more capital and an increase in domestic purchasing power, but also labour intensive technologies for bringing about the desired increase in employment It will also mean creating additional employment to the workers living in villages so that migration to urban areas will be lessened through rural industrialisation and thus save the country from the enormous cost of financing the needs of additional urban centres In any case, it will take some time, may be a couple of decades, before we can achieve full employment in India for all the population of working age. The other aspect of our population policy should be to see that the birth rate is brought down and increase in births in just enough to counter the number of deaths, but how to bring about a decrease in the birth-rate to the desired level is a problem that has been worrying the Indian policy makers now for some decades Coercion is obviously out of the question as was seen from the public reaction to the attempt made by the Government in some places to compel the population to undergo sterilisation as part of the population programmes One can of course think of incentives and disincentives to the families responsible for increasing the population by giving privileges - to those who have only 2 children and deny those privileges to those who have more If, irrespective of the larger number of children, some incentives are extended to cover the first two children, the same will not be well received because birth is too intimate an ingredient of the family and any attempt to interfere with its application either through incentives or disincentives will make for public reaction against the Government's interference in individual family matters However, what can be done is to try and create a strong consciousness among the masses of the negative effect on economic development by population increase which goes beyond two children percouple This really means a huge media campaign to make people understand the economic consequences of having more children and the relation between limiting the number of children per family and giving vastly increased opportunities for economic development on the part of limited number of children In this connection, much can be achieved-this has been shown by actual example - by the spreading of literacy especially for women and, women can be brought into the full mainstream of educational development It is also necessary to go in for increasing employment opportunities for women which is already a part of the policy

"Giving women a more active social life, instead of merely bearing and looking after children, will release powerful forces in favour of reducing the birth-rate."

announced by the Government Giving women a more active social life, instead of merely bearing and looking after children, will release powerful forces in favour of reducing the birth-rate It will also be conducive to birth regulation by individual couples if they find that having more than 2 children makes for difficulties in giving the best chance for development to their newly born children Population education not merely in schools and colleges, but also in all employment agencies and the public at large, linking up of family welfare with the limitation of children and the getting of good opportunities for development to the children who are fewer in number, will both create, stabilise and sustain public consciousness in favour of achieving a policy of birth regulation beyond having two children per family

In our own time we have seen that in India the middle class has actively taken to a policy of regulation of birth and normally do not have more than 2 or 3 children as against the previous generation which used to have 5 or 6 children The middle class has been influenced obviously by the consciousness of the link between limited families and their economic development In course of time this consciousness will seep through to the working and labour classes, inducing them also to follow the same example What is required is not merely a spread of the idea of limited family, but the hope for much greater chances of economic and social development and domestic family happiness, if the number of children are to be regulated by the family concerned The increased public consciousness that I have asked for will be effective in reducing the growth of population only if facilities for birth control are provided all over the country and brought to the notice of the people at large and especially the married people, particularly in the rural areas and the working class

If the steps that I have suggested are taken up and vigorously implemented, then an appropriate relationship will have been established with population and development, with the population contributing to increased economic development and at the same time children having better opportunities for economic development In order to give the population an optimal role in economic development, instead of merely adding to the demand on goods and services, they should be provided with opportunities for productive work This will require Government and planning bodies to regard population as playing a positive role, in case it is treated as human capital and necessary investments made to make it active by education, literacy, employment opportunities and technical skills On the whole, I would suggest that we should not regard incresed population and higher rate of economic development as being opposed to each other In fact, population represents the human factor in economic development, and it is the investment in human capital including regulation of family size by stimulating public consciousness and giving them needed facilities to effectively implement the results of that consciousness that can bring about harmony between population growth and development, and give the growth of population a positive factor for increasing development I would therefore not put population growth and economic development as playing an antagonistic role with each other, but treat them as aiding each other in bringing about the necessary economic growth with the population growth being treated as investment in human capital rather than merely permitting growth of demand without bringing about an answering increase in supplies □□□

Population growth and development in India-A perspective for the Eighth Plan

Pravin Visaria

The size of the population is not an index of development or growth of a country. In fact, the quality of life of our people could certainly be better with a slower increase in population. This is the basic theory elaborated by the noted demographer and expert on population statistics, Pravin Visaria, in the following article. Like other social thinkers on the subject, he also has stressed the need of involving women in substantial degree in the economic activity and providing education to them. In his opinion, infant and child mortality are inversely related to the education of mothers which deserves high priority in developmental programmes. The author has cautioned that there are no short cuts to social change and modernization and impatience can prove to be counter-productive. He agrees that the official programme to promote family planning has played an important role in spreading the [illegible] feasibility of controlling the family size. But [illegible] share the enthusiasm of those economists [illegible] emulate the chinese policy of introducing th[illegible] norm. He points out that even the chinese ha[illegible] their policy in recent years.

THE 1981 CENSUS OF INDIA ENUMERATED 685 million persons in the country (The figure includes an estimate for Assam State where enumeration was not possible because of an ongoing agitation against the influx of "foreigners". However, Assam accounted for only 2.7 per cent of the population in 1971, and despite its rapid growth, estimated to exceed 3.0 per cent per year, its exclusion does not affect the total figure seriously) Like all censuses, the 1981 Census is estimated to have omitted about 1.8 per cent of the population from the count. An adjustment for this fact raises the total population on March 1, 1981 to 698 million.

Table 1 reports the key population statistics of India since 1901. It shows that the population had increased by only 13 million (5 per cent) during 1901-1921, by 110 million (44 percent) during 1921-51 and then by 324 million (90 percent) during the past three decades. The increase during 1951-81 exceeded the total population of [illegible] the USSR or the USA with 260 and 230 million persons in 1981. Only China which enumerated 1008 million persons in its census

Table 1

Key Population Statistics for India, 1901-1981

Census Year	Total population (millions)	Average annual growth rate (per cent)	Persons per Sq km
1001	230.3	0.30	77
1911	252.0	0.56	82
1921	251.2	0.03	81
1931	278.9	1.06	90
1941	318.5	1.34	103
1951	361.0	1.26	117
1961'	439.1	1.98	142
1971	548.2	2.20	178
1981	685.2	2.25	221

... and has the largest population in the world, has witnessed a larger increase in its population since 1951 (454 million) than India.

International migration

International migration to or from India has been relatively small in relation to the total population of the country. In the wake of Independence in 1947, the separation of India from Pakistan and what is now Bangladesh caused over 15 million persons to migrate across what suddenly became international borders; but the net gain by India is estimated at about 70,009. During the 1950s, India gained about 1 2

On balance, international migration remains unimportant as a factor influencing the rate of population growth. Therefore, we need to focus attention on mortality and fertility trends alone."

1.3 million persons, but the flow seems to have ...ed during the 1960s. Most of these migrants came ...m what was then East Pakistan to eastern India, ...ticularly Assam and West Bengal. Since Bangladesh ...t from the rest of Pakistan in 1971, their influx into ...am has accelerated but no precise estiamtes are ...sible The emigration of Indians to the Middle ... and elsewhere during the 1970s has partly offset ... inflow into eastern India On balance, inter...onal migration remains unimportant as a factor ...encing the rate of population growth. Therefore, ...eed to focus attention on mortality and fertility ...ds alone

...ta on mortality and fertility rate

... the developed countries, a continuous ...ration of vital events (births, deaths, marriages ... divorces and sometimes movements or ...tion as well) provides information on the trends ... rate of growth of population in the country as a ... as well as its subdivisions. Such civil ...ation (as it is called) had begun in India ...ds the end of the 19th century but it has ...ned notoriously deficient or incomplete In ...e system was virtually non-existent in native ...and since independence, it had deteriorated ... other areas In 1989, the Registration of Births and ... Act was enacted by the parliament, but except ...e requiring the legal proof of death or birth for ...y transfers or for admission of children into ... (mainly the urban residents) the people ... unaware of and or uninterested in the ...ion of births and deaths. This serious gap in ...istical system is filled in by the Sample ...ion System, which concentrates on a ... sample of areas to register all births and ...rough a resident enumerator who contacts ...nformants (priest, barber, midwife, village ..., and other functionaries) He is also expected to maintain a register of pregnant women and to visit the households once every quarter in rural areas and once each month in urban areas.

Even the SRS has its problems and some gap under registration is not at all unlikely. Up to 1978, the data for Bihar and West Bengal were considered so deficient that they were not pooled with those for rest of the country After 1978, the coverage of the SRS is believed to have improved. Even otherwise, the SRS estimates seem to be better than the survey-based retrospective data in which the respondents are asked to recall events of the previous years

A half-yearly independent survey by a supervisor checks the enumerator's data and the two sets of information are matched A total count to births and deaths is obtained after verification in the field of the unmatched and partially matched events The results are pooled to obtain state-level estimates for rural and urban areas

Overall, for the period upto 1971, we have to rely on indirect estimates of birth and death rates, prepared by census actuaries and demographers on the basis of the number of persons enumerated by successive censuses in various age groups Despite some known weaknesses, these estimates provide a reasonably good idea of the broad trends

The slow growth during 1901-21 was a result of frequent epidemics of plague and cholera, famines, and the influenza epidemic of 1918-19 Because of the latter, the death rate rose during 1911-21 almost to the level of the birth rate The average annual growth rate of around 1 2 percent during 1921-51 was widely regarded as a telling index of the absence of any unpleasant calamity and of stability and peace The growth rate during 1941-51 would

"The decline in infant mortality seems to be related to the emphasis after about 1975-76 on the immunization of pregnant women against tetanus and of children against DPT; the effect of the former is said to continue for several years. However, the precise factors contributing to the mortality decline after 1978 are yet to be identified."

have probably been higher, were it not for the Bengal Famine of 1943 and its after effects (causing between 1 5 and 3 0 million deaths) as well as the dislocation of normal life associated with the post-partition migration to and from India

The growth rate during the 1950s was almost 2 0 percent, substantially above that during the 1940s Credit is usually given to the control of malaria (including turberculosis) through the introduction of low cost antibiotics and sulpha drugs It is believed that the estimates of gains in longevity during the 1950s involved an over statement because of the under reporting of infant deaths in the survey which

formed the basis of the infant mortality rates incorporated in the official life tables for the period However, mortality decline has continued during the 1960s and the 1970s.

Available data also shows the absolute and percentage changes in birth and death rates during successive intercensal periods. It shows a faster decline in the death rate than in the birth rate throughout the period 1901-81. The pattern is consistent with experience in several parts of the world in which mortality declines precede the fertility decline and lead to a phase of accelerated

"In 1961, only a very small proportion on Indians practised contraception, so small that India of that period could be considered a non-contraceptive society. The change since then is quite significant. The estimated effective rate of contraception at the end of March 1987 (37.5 percent) seems to be higher than would be expected according to the international experience for a country with our level of literacy."

population growth This experience is summed up as a stylised conceptual framework, called the theory of demographic transition

An interesting question arising from the available data is did the birth rate decline rather sharply during the 1940s and then rise? The answer seems to be, "Yes, there was some decline (not a very sharp one), presumably because of the famine in 1943 and the post-partition dislocation in certain parts of the country" Even the alternative estimates based on the quasi-stable population model suggest a modest rise in the birth rate during the 1950s, relative to the 1940s Such a rise is not unlikely, it has been witnessed in other countries of the world

The decline in the death rate implies a rise in the average length of life of the people and represents a welcome gain in the real income of the people Although little information is available to identify the prevailing socio-economic differentials in mortality, the rural-urban gap in the expectation of life at birth has narrowed between 1970-75 and 1976-80, from 10 9 to 9 5 years

The infant mortality rate among the scheduled castes and tribes during 1978 (132 and 144 respectively) was higher than the average (120) but the differences were smaller than between rural and urban areas or between children of illiterate and literate rural mothers (128 and 75, respectively) (India, Registrar General, 1983, pp 71-73) In all probability, the weaker sections of the society have also shared the gains in longevity

An interesting feature is the rise in the life expectancy at birth between 1976-77 and 1980-by 3 3 year for males and by 4 7 years for females It seems odd that the SRS data show a decline of more than 20 percent in the crude death rate in five major states having a total population of about 200 million in 1981 (30 per cent of the total) Infant mortality rate, which fluctuated around 130 during 1970-77, dropped to 114 in 1980 and further to 105 in 1983 and 104 in 1984 The decline in infant mortality seems to be related to the emphasis after about 1975-76 on the immunization of pregnant women against tetanus and of children against DPT, the effect of the former is said to continue for several years. However, the precise factors contributing to the mortality decline after 1978 are yet to be identified

Methods of contraception

There is a widespread impression that the Indian family planning programme heavily relies on sterilizations as the method of contraception However, the data relating to annual acceptors by method since 1966-67 indicate that the sterilizations formed 50 percent or more of all acceptors only during 1967-69 (the initial years of implementation of the reorganized programme), 1972-73 (the year of mass vasectomy camps), and 1976-77 (the emergency period) or in four out of the 20 years During the past decade, the acceptors of IUD's or conventional contraceptives (mainly condoms and to a small extent pills), which are sometimes called "spacing methods" because of their reversibility have accounted for between 64 to 79 per cent of all acceptors However, sterilization is essentially non-reversible and is presumed to have an effectiveness rate of almost 100 percent (at least three months after vasectomy),
expulsions

"An oft-r
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developmental programmes."

sustained motivation for their use As a result sterilizations tend to account for 75 percent or more of all effectively protected couples

It is recognised that in the years ahead, the programme will have to lay even greater stress on spacing methods because of the need to cover younger couples The mass media are being used to stress also the delayed marriage (with the current emphasis being on observing the legal minimum age of marriage of 18 years for girls and 21 years for boys)

Age at marriage

The limited effectiveness of the vital registration sytem leads to a widespread ignorance about the actual age of individuals To enforece any laws about

As we look ahead, the cost of a social security system and the problems of operating it seem beyond our capacity in the foreseeable future (although the provision of such facilties for the organized sector of employment and their denial to others outside the formal sector certainly seem inequitable) Likewise, the roles performed by Indian women include a substantial degree of economic activity even though the resulting flow of goods and services does not pass through the exchange network and according to the current conventions to measure national income, it is not generally covered in the accounting framework Also, one must recognize the limits of employment policy in an economy in which a majority of the workers are self-employed (including unpaid family helpers) Also, interventions to promote employment of particular groups or sections of population tend to make our highly segmented labour market more compartmentalized and less efficient

As for other policies, it is a fair guess that the couples are concerned about the number of living children rather than about the children ever born Therefore, a lowering of the risks of infant and child mortality should gradually induce parents to recognize the conflict of interest even between siblings However, such realization is hampered by the prevalent perceptions that only the members of the kin group can be "trusted" in a family enterprise or firm (whether agricultural or otherwise)

An oft-repeated aspect of human resource development is the promotion of literacy and education among women Both infant and child mortality and fertility seem to be inversely related to education of mothers which seems to deserve high priority in developmental programmes The slow progress of female literacy in some large states of north India since 1947 does not inspire much hope that a breakthrough can be achieved during the next five to 10 years, but imaginative efforts to exploit the opportunities opened up by the television are certainly in order

Further, it is important to recognize that there are no short cuts to social change and modernization and impatience can be counter-productive In fact, in our fragmented society, the individual couples are unlikely to recognize the consequences of alternative courses of reproductive behaviour if they can easily absorb the additional workers in the family farm or enterprise without much effort (By comparison, the employee households are likely to recognize the pressure of growth of population and labour force more easily than the self-employed One cannot therefore plead for policies, intervention to change the structure of employment in terms of status, (i e the share of employees, self-employed, etc) but the nature of relationships merits careful consideration and research

Finally, the social scientists must note that the middle class perceptions about the effects of rapid population growth are often unwarranted. The growth of population and labour force does impose costs on those already born and the employed; but many of the costs are in the nature of externalities. The benefits of slowing down of population growth are easily evident in a comparative statics framework in which alternative scenarios are compared However, the ability to think in the abstract about alternatives and their consequences is not widespread

A judicious combination of incentives and disincentives may facilitate such an evaluation of alternatives. However, I share the widespread concern about the unintended harmful consequences of the incentives being offered to individual acceptors and motivators. It is high time to experiment with group incentives (if the absence of community spirit prevents the effective implementation of community-level incentives) at least in a few selected areas. At the same time, one mild disincentive can be introduced to ensure that all applicants for public sector jobs (whose number far exceeds the actual number of new recruits) would have to observe the prescribed minimum age at marriage in the case of both spouses (Raising the age at marriage is an important means of lowering fertility) Several other proposals for incentive and disincentives can be considered but their feasibilty need to be established in our continental country.

To conclude, I am reminded of the words of a senior Indian economist who argues that "planners must plan for a population, they cannot plan the size of population " This dictum contains an essential truth, although over the long run, the planners can certainly influence the size of population This is demonstrated by the Chinese who have attempted to implement a "one-child family policy" in order to limit the growth of their total population to 1200 million in 2000 A D While the Chinese have also been forced to relax the policy in recent years, their effort seems commendable from a distance A few of our leaders seem to suggest that India should emulate the Chinese and adopt a one child family norm, but it is difficult to share their enthusiasm because of the inevitable prospect of coercion in its implementation □□

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Revolution of expectations

Asok Mitra

Should there be State intervention in the limitation of family? In India, the government has followed the policy of persuasion and incentive. Our neighbouring country, China, introduced severe norms of family limitation, imposing penalties on the defaulters. The author, who has a vast experience in guiding economic affairs, points out the discrepancies in our family planning policy which have resulted in fast growth rate of population. Citing examples from recent history, he tells that Japan, Britain and Russia, had the imagination to introduce universal primary education as a sure instrument of population control. In his opinion, one rupee spent on primary education was worth ten rupees spent on family planning publicity and supply of contraceptives. The awareness of the advantages of a limited family could come only through education. According to him despair-oriented family planning is at the opposite pole of aspiration-oriented family planning. He asserts that domestic agenda must get top priority before embarking on a meaningful programme of population control.

HIS NEAT, ALMOST SLICK, formulation of the relationship between food production and population growth did Malthus an unintended disservice. His critics sought to find fallacies and Marx condemned him as a plagiarist, which stuck like mud to his name The nineteenth century was the age of unfounded faith in man's ability to master Nature This confidence was inherited in our century by Soviet Russia and People's Republic of China. They began by violently denouncing Malthus, claiming that population growth was welcome and could never present a problem to socialist societies. Both were quick to go back on their faith. Soviet Russia, however, right at the start, introduced a safety valve by legalising abortion, China introduced increasingly servere norms of compulsory family limitation within a decade and a half of its birth.

What has restored Malthus in our half of th twentieth century on a different conceptual pla however, from what he originally formulated, is, limited and dramatic relationship between food a population growth but that between populati growth and the conditions of continuing soc economic and material growth that will guarant the pursuit of human happiness and wellbeing. Si this depends on increasing extraction of wealth fr nature, a new and more portentious element has n entered Malthus's conceptual framework. This preservation of ecological balance and renewal of t environment to ensure safe recycling of natu resources

This new version of Malthus's thesis underlin the importance of still another precondition that h not found place in Malthus's original formulatio

the continuing improvement in the quality of ı resources without which no assured and uing balance between population and ıpment is possible

third element demands that population r be of such pliant and manipulable size and ısed of such excellence as will ensure the ıum thrift and economy of conservation of ıl resources through the use of improved edge and technology in our pursuit of ıess and material progress.

elopment of human resource stands as the of this third element. The means by which a

this failure of the domestic agenda that s India a colossus with feet of clay and away from the respect of the rest of the l that she otherwise so amply deserves."

ı achieves it may in one word be called its stic agenda This domestic agenda is at its ng best when a government removes gross ·ities and ensures several basic needs to every ı equality of civil and other rights and equal tunity in all endeavour irrespective of sex and or economic status The means of assuring to the best advantage are education, health, ıon, shelter, livelihood and a horizon of rising tations in moral and material well being This is st guarantee for safeguarding the interest of the dual as well as that of the nation and the state

his has been explained in our successive five lan documents What, however, seems to have awry is appreciation of the need to take ıned steps to remove the glaring discriminations, alities and other disabilities in our social fabric ll as between town and country and to hold fast rtain timebound priorities We have not ved either and this is what once again came to our dismay at the International Population rence held last September in Delhi It is this · of the domestic agenda that makes India a us with feet of clay and takes away from the ·t of the rest of the world that she otherwise so · deserves

r, or perhaps five, elements plagued our ıal effort in this area, as in several others, from art First was the belief in the trickle-down of all planned effort the belief that economic ıpment has an all-peverasive beneficent, and t automatic effect from the top down to the n Each level receives its share of the gravy as it ·s down from the top This encouraged uniform ımme recipes and delivery structures in all of the country irrespective of specific populations or communities with their special cultural, economic and social problems or disabilities and backward geographic regions. It was only at the Inter-national Population Conference in New Delhi in September that the Prime Minister talked of a different approach He spoke of the need to tailor the overall delivery machine of a national plan and break it down to different time-bound approaches and mixes to specific target populations, cultural milieus and geographic regions.

Second was the neglect to weld different facets of a programme into a single synergistic and compound package through an interwoven network of delivery agencies Instead, each facet was placed in charge of a monolithic delivery system with weak coordination and supervision at levels remote from the field This led to needless proliferation of staff and departmental rivalries, unwillingness to share effort and information or to ride piggyback on each other

Third was the overriding insistence on the spending of budgeted money by a certain date to the neglect of targeted physical achievement on the ground Premium was put on spending performance was judged by who ran through the money the fastest. This led to the disregard of cost-efficiency and accounting of benefit to cost

A fourth product, a natural corollary, which settled like a millstone round the nation's neck was the numerous proliferating bureaucracies around a single national aim, all competing with each other for self-aggrandise...

There wa... particularly... proliferatio... motivators

"India igno... grammes of ... China was in a ... perhaps because she had brought about a fairly good measure of social and economic equalities of opportunity and pulled up the great mass of the people above a certain threshold of quality of life."

dictated by the need to boast of evergrowing budgets and staffs, but the end result was more fudging of statistics of performance and graft and inviting the citizen to abet and eventually turn dishonest

State intervention programme

But let us turn to the problem of population and development in our country Although thoughtful Indians have been writing on the Malthusian spectre since the last quarter of the nineteenth century, the first serious warning in our half of this century came from independent India's first Registrar General and Census Commissioner, R A Gopalaswami, who in 1952 wrote vehemently on the need to curb improvident maternity Simultaneously, the First

Plan document addressed itself earnestly to the problem. Government action, however, was largely limited to creating awareness and not to the need of removing disparities and discrimination among communities, bringing about the appropriate social and economic equalities of opportunity favourable to acceptance. Faith in the inevitability of the trickle-down hypothesis persisted even as late as the World Population Conference at Bucharest in 1974 India ignored the stiff state intervention programmes of China in enforcing family limitation. China was in a position to impose penalties perhaps because she had brought about a fairly good measure of social and economic equalities of opportunity and pulled up the great mass of the people above a certain

"We tend to forget that there can be two kinds of acceptance that have very little in common: acceptance born of despair of any improvement in the quality of life in the foreseeable future: the other, acceptance born of the revolution of rising expectations among those who now see light at the end of the tunnel"

threshold of quality of life By the same token India was perhaps afraid to impose penalities because she had neglected to do the basic operation bootstrap Instead, between 1962 and 1974, while China was forging ahead with penalties for default in family planning, India put undue emphasis on propaganda and exhortation on the building of a network of contraceptive delivery systems without equal thought paid to nursing clients for them Instead we went for a shortcut by emphasizing terminal methods and of offering large cash incentives to those who submitted themselves to sterilization

Two kinds of acceptance

Poverty and distress among the population below the poverty line produced a fluctuating pattern of acceptance of sterilization which is still seized upon by population control experts who would like us to believe that any casual upward swing points to a steadily upward trend We tend to forget that there can be two kinds of acceptance that have very little in common: acceptance born of despair of any improvement in the quality of life in the foreseeable furture; the other, acceptance born of the revolution of rising expectations among those who now see light at the end of the tunnel.

As for the first kind of acceptance, that is, out of despair, it has been proved beyond doubt by demographic research that desire to increase family size revives with the first signs of possibility of improvement in the household. This has been proved among Indian migrant families who move from the village to town and improve their lot. This has also been experienced in China, in spite of her array of harsh penalties, as soon as family fortunes improve in rural and urban areas.

It is only when a family is assuredly above a certain economic, social and cultural threshold, and has other means of securing goods and services and other worthwhile goods for itself than by producing another child, that family limitation firmly takes root and becomes an act of faith Despair-oriented family planning is at the opposite pole of aspiration-orientated family planning

It is usual to speak of a comfortable difference between the rate of growth of the gross domestic product at constant prices and that of population growth as a guarantee for continuing prosperity of a nation and as a precondition of slowing of population growth The widening of the difference of the two rates is believed also to ensure the achievement of the threshold I have just spoken of But in Indian conditions the income and other disparities are so great above and below the poverty line that it seems necessary to modify the above formulation. To my mind the more relevant consideration will be to measure the gross domestic product in terms of the national production of food and those basic needs that are more pertinent to the population up to fifteen percentage points above the poverty line and relate the growth of this subpart of the nations's gross domestic product to the rate of growth of the population that is below the poverty line upto fifteen percentage points above it. It is this relationship that will be more valid in India's case to make sure that the race towards equity and distributive justice acquires the right momentum to ensure the success of the nation's family planning programme at all levels

Revolution of rising expectations

The basic preconditions of lowering population growth even in conditions of low income and low economic growth are well identified in our country Kerala has been the proving ground beyond doubt

"Other countries have borrowed small segments of our fired and toasted programmes and made great successes of them. But we, who have often been the originators, have neglected and failed to work them out to their logical conclusion".

These are the age-old imperatives of . (1) universal literacy at least to the level of primary education, (2) reduction of infant, child and maternal mortality for which recipes and programmes have been well determined, these will in turn reduce the need of replacement with the help of high fertility; (3) improving nutrition and primary health and medical care to ensure better health, life expectancy, productivity, acquisition and retention of skills, the recipes for these too have been identified and translated into programmes, (4) employment of women outside of home to move from their present predominantly biologically reproductive role to socially, culturally and economically productive

roles; (5) health for all to ensure work efficiency, quality of life and productive efficiency; (6) shelter to ensure a sense of identity and belonging; (7) an expanding vista of improving skills, technology and rising incomes to sustain the revolution of rising expectations.

All these have been tested and worked out into beautiful comprehensive programmes, like the ICDS, for example, each fortified with adequate allocations Other countries have borrowed small segments of our fried and toasted programmes and made great successes of them But we, who have often been the originators, have neglected and failed to work them out to their logical conclusion.

At the population session of the Indian Science Congress held in Bombay in 1967, I presented a case in my inaugural address for earnestly bringing about universal primary education in say the next ten years, arguing that one rupee spent on universal primary education would be worth ten rupees spent on family planning publicity and supply of contraceptives Unfortunately our own national movement is still enamoured of the American concept of 'selling' and 'marketing' family planning than of the conditions for creating the market

In the centenary year of Jawaharlal Nehru's birth I feel like unburdening myself of two regrets. Only Nehru could have removed them if he had so willed I wonder who now will take them up Unless these are taken up in earnest I shall continue to have fears of runaway population growth which will bode us no good at all

First, I never cease to wish that Nehru had held fast to an indisputable priority As a student of history, he knew how at the dawn of the Meiji era in 1869, the Mikado took responsibility for universal primary education alone and no other social welfare programme Nehru must have also known how, with the introduction of compulsory primary education in 1870, Great Britain assured her own ascendency in the industrial world and paved the way for a sharp decline in the birth rate and disappearance of child labour With his admiration for the Soviet system, he must have also remembered how Lenin was persuaded by statistician Strumilin to reduce the outlay on his favourite electrification plan for Russia-GOELRO-and divert money to a crash programme of universal primary education instead. Strumilin had, on the strength of his sample surveys, convinced Lenin that four years of even the traditional three R's would lead to a substantial rise in the nation's productivity An illiterate is to a literate person what a blind man is to a man with normal vision. Nehru had also Gandhiji's model of basic education before him and Tagore's endorsement of it Had he insisted on a timebound target of universal primary education, resolutely discountenancing the traditional discrimination against religious minorities, backward castes and classes, Nehru would have automatically set in motion an irreversible and accelerating trend in equality, social justice and democratic norms This, in turn, apart from instilling selfrespect and self confidence, would have favoured voluntary population control, the revolution of rising expectations, higher productivity and demand for technological and attitudinal change in every sphere of life

I cannot desist from a second regret implicit in the first One is left with a feeling that Nehru had not applied himself as staunchly to Abraham Lincoln's dictum that a nation cannot live half-free and half-slave. In his voyages of discovery of India he must have realised that his own country was less than one quarter free and more than three-quarters slave, if one included in the latter category, as one ought, the depressed castes in the Hindu fold and the numerous under-endowed tribes and religious minorities He did not nee[illegible]
illiteracy, [illegible]
employme[illegible]
productivit[illegible]
knowledge[illegible]
without a[illegible]
equality of [illegible]
her strength[illegible]
claim the place in [illegible]
her Indeed it was this neglect on his part and later that of his daughter, firmly to lay down and work out what I have called a domestic agenda that led the country to self-defeating programmes for the poor and the socially handicapped, culminating in *Garibi Hatao* in the seventies and eighties These programmes have led to corruption down the delivery line and ecouraged beggarliness and dependence more than self-reliance among recipients The failure of the domestic agenda has done great harm to the cause of arresting population growth □ □ □

"One rupee spent on universal primary education would be worth ten rupees spent on family planning publicity and supply of contraceptives. Unfortunately our own national movement is still enamoured of the American concept of 'selling' and 'marketing' family planning than of the conditions for creating the market."

Population growth and urban development

M.N. Buch

There is a steady migration of rural population towards urban areas and it is feared that this trend would gather further momentum in the years to come. The more backward a rural area is, there is a greater likelihood of its population rushing to adjacent towns and cities. The author, a senior administrator and an expert on human settlements, has given a sharp analysis, supported by facts and figures, of this alarming situation which could be a cause of concern for our city planners. He has cautioned that if the rural employment programmes fail t... growing number of unemployeds, an ac... rural to urban areas can not be ruled ... recommendations of the National Com... which suggests that instead of devel... cities, attempts should be made to co... large number of small towns where th... high and overwhelmingly rural.

THE REGISTRAR GENERAL OF INDIA has projected the population of India to be 83 7 crores in 1991, of which 23 crores would be urban and 60 7 crores would be rural He has further projected the population in 2001 to be 98 6 crores, with 32 6 crores being urban and 66 crores being rural The National Commission On Urbanisation, however, on the basis of projections made by the United Nations and its own studies, has estimated the urban population to be about 35 crores by 2001 Approximately half the increase in urban population comes from migration from rural areas or from small towns and large villages, which means that even accepting the Registrar General's projection, we can expect at least 4 5 crore migrants from rural areas into the urban centres The National Commission On urbanisation's projection however, appears to be more realistic and, working on the basis of a figure of 35 crores, the rural migration into the urban centre would be between 7 and 8 crores by the year 2001 This is an assumption that rural employmen programmes would absorb about 5 crores additiona hands by that year. If rural employment fails to kee pace the likelihood of accelerated migration fror rural to urban areas cannot be ruled out

Increase in urban population

It is not merely the numbers, both in relation t urban population and rural-urban migration, whic are of concern It is where this growth is occurrir which is also important Taking 5 large economical backward States, U P , Orissa Rajasthan Bihar ar M P the respective urban and rural annual exponenti growth rate between 1996 and 2001 is estimated a under

;tate	Rural growth rate percentage per year	Urban growth rate percentage per year.
I P	0 5	5 1
)rissa	0 4	4 7
tajasthan	1 1	4 4
;ihar	1 4	4 4
A P	0 2	3 9
All India	0 7	3 4

People are leaving rural areas in search of ıon-agricultural jobs, which are to be found ›nly in the towns."

In the most backward States, therefore, the shift rom rural to urban areas will be pronounced This is n sharp contrast with the situation in the 4 most ırbanised and industrially developed States

tate	Rural percentage per age per annum	Urban percent age per annum
Aaharashtra	0 6	2 6
Vest Bengal	0 8	2 3
;ujarat	0 6	2 3
'amil Nadu	0 6	1 8

)istrict ıeadquarters owns	District	Percentage rate of growth
'atna	Patna	86 50
tanchi	Ranchi	95 89
Auzzafarpur	Muzzafarpur	50 16
;ihar Sharif	Nalanda	51 24
(atihar	Katihar	51 89
'urnia	Purnia	53 76
;iridih	Giridih	62 36
Aotihari	Purvi Champaran	56 61
Hajipur	Vaishali	49 22
;aharsa	Saharsa	147 42
)altonganj	Palamau	68 48
iwan	Siwan	54 44
;amastipur	Samastipur	49 61
;itamarhi	Sitamarhi	73 39
ahanabad	Jahanabad	52 91
Nawada	Nawada	63 19
Aurangabad	Aurangabad	77 35
;opalganj	Gopalganj	56 78
tajmahal	Santhal Pargana	51 64

;ource Census Of India-1981

In addition there are a number of tahsil level towns vhich are also growing very fast

Vhat the above two tables suggest is that in the more ›ackward States, as the total population increases, 'conomic stagnation in rural areas will force people to move to non-agricultural jobs As these are to be found mainly in urban areas, the result would be an inflow of rural people into towns and cities This phenomenon is already observed in densely populated States such as Bihar In that State many districts and tahsil towns have phenomenal growth in the period 1971-81 The following district head quarters towns especially come to notice:—

District	Percentage of Total Population		Growth rate 1971-81	Urban	Rural
	Urban	Rural	Total		
1	2	3	4	5	6
Patna	36 87	63 13	34 68	64 30	21 85
Ranchi	20 93	79 07	17 55	79 36	7 30
Muzzafarpur	8 06	91 94	23 27	50 16	21 36
Nalanda	13 62	86 38	25 44	83 61	19 48
Katihar	9 41	90 59	25 52	67 60	22 33
Purnia	7 96	92 04	28 09	68 32	25 94
Giridih	14 20	85 80	25 91	36 03	24 38
Purvi-Champaran	4 65	95 35	24 11	67 09	22 58
Vaishali	6 48	93 52	23 17	38 64	22 22
Saharsa	5 72	94 28	25 61	58 66	24 04
Palamau	5 64	94 36	27 37	53 20	26 10
Siwan	4 41	95 59	21 61	51 19	20 13
Samastipur	4 16	95 84	23 13	54 16	22 07
Jahanabad Not available as the figures are included in Gaya District, from which Jahanabad has recently been carved					
Nawada	6 65	93 35	22 95	46 07	21 58
Aurangabad	6 94	93 06	21 69	70 92	19 14
Gopalganj	4 98	95 02	22 94	131 29	20 00
Santhal-Pargana	6 88	93 12	16 32	39 03	14 94
Total for Bihar	12 46	87 56	23 90	54 40	20 15
All India	23 73	76 27	24 43	46 02	18 96

Source Census of India 1981

Taking the above districts, a comparison of the proportion of urban to rural population and the growth rates of urban to rural population in the districts as a whole, together with a comparison of the above figures for All India and for Bihar, would also be quite revealing

"Whereas the lack of job opportunities in rural areas may be more evenly spread over a large territory, the lack of urban job opportunities would be highly concentrated in the towns and would lead to enormous problems of poverty, tension and social unrest."

15 of these 19 districts have less than 10 per cent of their population living in urban areas, but in all of them the urban growth rate is very much faster than the rural Whilst this is reflected in the All India figures also, in the highly rural oriented districts of Bihar the impetus to urban growth is even higher than the national average There can be only one explanation for this, which is that intra-district

migration in the more backward districts is substantial. People are leaving rural areas in search of non-agricultural jobs, which are to be found only in the towns. When we compare this with the situation in West Bengal, we find that urban growth rate is 31.36 per cent as compared with the national average of 46 02 and the Bihar figure of 54.40 in 1971-81, whereas the rural growth of 21 11 per cent is comparable with the Bihar figure of 21.15 A form of equilibrium seems to have developed between urban-rural population in Bengal in sharp contrast with the situation in Bihar. The only explanation which comes readily to mind is that in West Bengal land reforms, a thrust towards equitable distribution

"The industrial location policy has also had very little impact on backward people, largely because the jobs thus created go to better educated and trained people from the more advanced areas, who follow industry to the new locations."

of wealth and job opportunities and a commitment of government to rural development have all combined to create a new climate of hope

[illegible]

There are two States which have made considerable agricultural progress, Haryana and Punjab In 1981 the urban population of these two States accounted for 21 96 and 27 72 per cent respectively of the total population In Haryana the urban growth rate was 59 16 per cent as against the rural growth rate of 21 36 per cent in 1971-81, and in Punjab the figures were 46 36 and 16 59 per cent respectively In these two States it is the mandi towns which have grown fastest, whereas the large cities such as Amritsar, Jullundur and Patiala in Punjab and Faridabad, Rohtak, Karnal and Ambala in Haryana have not shown the growth characteristics of the larger cities such as Patna and Ranchi in Bihar The agricultural prosperity of the Punjab and Haryana has given momentum to the growth of service and market towns, which are closely linked with the agricultural hinterland through the marketing of agricultural surplus This is urban growth of a type in which there are close hierarchical linkages between village and mandi town, intermediate town and city This is an example of a healthy settlement pattern in which all classes of settlements have an equally important role to play

The situation in Bihar is not unique because other backward states such as M P, Orissa, Andhra Pradesh, etc , are also showing similar trends What are the planning implications of this phenomenon ? The foremost need is to provide jobs for 6 to 10 crore additional people who, by the year 2001, will dwell in rural areas. Even accepting the lower figure of 6 crores, it means at least 1 5 crore additional rural jobs. If these are not provided migration into the urban areas will be even greater, necessitating the creation of that many extra jobs in towns and cities The urban population would also have increased between 9 and 12 crores, depending upon whether we accept the projection of the Registrar General or of N.C.U This would necessitate between 2.25 crore and 3 crore additional jobs in the urban areas Anything between 4 to 5 crore additional jobs, urban and rural, would, therefore, have to be created by the year 2001 if we are to gainfully employ the increased population Whereas the lack of job opportunities in rural areas may be more evenly spread over large territory, the lack of urban job opportunities would be highly concentrated in the towns and would lead to enormous problems of poverty, tension and social unrest This is the situation which will have to be squarely faced by our planners in the next few years The critical areas are the states of Bihar, U P M P Orissa and Andhra Pradesh These are the States in which there is both a thrust towards urbanisation and the need to create non-agricultural jobs to absorb the fast increasing population These are the States in Which there is need to give an impetus to urbanisation so that the surplus rural population could be drawn away from agriculture and thus reduce the pressure on land and permit more productive agricultural activity

Need for new strategy

At present there is a three-fold strategy adopted for development of rural and backward areas The first is the creation of infrastructure which can support and improve agr [illegible] education and ex[illegible] irriga[illegible] of b[illegible] states [illegible] succ[illegible] the c[illegible] the u[illegible] of town[illegible]

"Breaking the cycle of crop failure during drought would virtually eradicate poverty from vast areas of this country."

The second thrust area is the poverty alleviation and employment generation programmes through which the rural landless, small and marginal farmers and agriculturists living in drought-prone areas are provided development support and funding The third thrust area is the location of industries in backward areas by making available generous concessions The concept is to generate employment in backward, rural areas by creating new industrial jobs

All these programmes have been only partially successful Agricultural research and extension and improvement of irrigation facilities still provide a coverage of only about 30 per cent of the rural, agricultural population, leaving about 70 per cent, of

45 crore people, virtually untouched Similarly the poverty alleviation programmes have tended to work more as relief programmes, creating some local employment on works which do not really create self-sustaining assets. The industrial location policy has also had very little impact on backward people, largely because the jobs thus created go to better educated and trained people from the more advanced areas, who follow industry to the new locations. The stark reality is reflected in the story of the districts of Bihar, enumerated above, where most of the people live in rural areas, face abject poverty and economic stagnation and are forced to migrate to the nearest town, which itself is stagnant If the problem of poverty, both urban and rural, is to be tackled, a completely new strategy is called for On the rural front this would have to take the twin form of improving agricultural productivity and simultaneously siphoning off the surplus rural population to non-agricultural jobs so that further sub-division and fragmentation of land is avoided. To improve agricultural productivity there would have to be major shift of investment, research and technological input from the irrigated areas of the Indo-Gangetic plains into the vastly larger areas of rainfed agriculture It would entail massive genetic research on paddy, millets, pulses and dry zone oilseeds to make these crops capable of producing at least an average yield even in a year when the monsoon behaves erratically Breaking the cycle of crop failure during drought would virtually eradicate poverty from vast areas of this country

Coupled with agricultural improvement would naturally follow the jobs which grow out of agriculture, including marketing, processing and transporting of agricultural surplus A number of service functions, similar to those found in the Punjab and Haryana, would also emerge and generate a great deal of local employment There would be a thrust towards urbanisation as a result thereof, but this would be small town based and would organically from a link with the rural hinterland

"Breaking away from british model

Equally important is the need to create jobs not linked with agriculture, but dependent to a certain extent on the increased purchasing power of the rural consumer. Such jobs can only be found in towns It is in this context that the rcommedations of the National Commission On Urbanisation assume vital significance The Commission has suggested that we break away from the British model of developing a few metropolitan cities, or the present model of trying to link jobs with industrialisation of backward areas. Instead the Commission has identified about 600 towns, spread over 50 different, interconnected regions, which have shown growth characteristics, have a potential for growth or are located in districts where the density of population is high, the population is overwhelmingly rural and where the need to create new job opportunities is paramount In a further refinement of this exercise the Commission has narrowed the choice of towns to 329, most of them in the small and intermediate size range, the infrastructure of which needs to be developed. A large number of them are located in states which are in need of creating job opportunities for unemployed rural people. The Commission's view is that if the infrastructural need of these towns are identified in detail and suitable investment is made in the regard, entrepreneurs would automatically be attracted to locate their businesses in these towns, especially if a policy of positive disincentives is adopted to discourage location in very large cities. Generally speaking these disincentives should take the form of taxation, differential tariffs for power and water and land pricing, which would make the entrepreneur pay a share of the cost of social overheads of locating his business in a large city, where he is already drawing advantage from economies of cluster In a bold statement National Commission On Urbanisation has recommended that the share of the urbanisation, including planning and development, water supply, sanitation and housing should be 8 per cent share of the total plan, instead of the present 4 per cent, with the central sector outlay being increased to 50 per cent of this share instead of the present 0 25 per cent. Assuming an Eighth Plan of Rs 2 lakh crores, we would thus provide Rs 16000 crores for urbanisation, of which Rs. 8,000 crores would be in the central sector If the Ninth Plan is of Rs 2 25 lakh crores, urban development should receive Rs. 18,000 crores, which means that over the next 10 years an investment of between Rs. 30,000 and Rs. 35,000 crores would be made in the urban sector In terms of annual investment it comes between Rs 3,000 and Rs 3,500 crores over a ten-year period. At least half of this should go to improving the infrastructure of those urban centres which are selected for development under the criteria laid down by the National Commission On Urbanisation.

Strong rural link

By simultaneously developing a large number of small and intermediate level towns in a well dispersed pattern we would create growth centres which have a strong rural link. The jobs created in these towns would also generate demand which could be met from the immediate rural hinterland through increased agricultural productivity In other words, the towns would create the markets which, in turn, would provide the incentives for agricultural development. This would be an extremely desirable pattern of growth, the beneficial effect of which has already been amply demonstrated in the green revolution states. The great advantage of such development is that even those economists and politicians who are opposed to a model of development which is western oriented and urban based, would find the model presented in this paper attractive because it views urbanisation and rural development in tandem and in harmony. □ □ □

Demography and development-Some Facets

Dr. Malcolm S. Adiseshiah

Can population increase and improved development co-exist? There are divergent views on this difficult problem. But, one fact is established. In the case of India, the growth in population, which has been steady during the last three decades, has come in the way of faster rate of development. A determined and direct attack on poverty, unemployment and housing shortage by well-organised programmes has not been able to produce the desired results. Dr. Adiseshiah, a well-known authority on economic affairs tells us in the following piece that if the economy is not able to provide employment to the current workforce of 305 million, over half of whom are underemployed or unemployed, it will not be able to provide employment to the workforce increasing by 30 per cent in 2000 AD. The author has suggested certain incentives and disincentives to put a curb on the growth of population. These suggestions are open for discussion and reflection. He has also pointed towards the element of coercion in the implementation of his suggestions. But, in his own words, there is coercion in most aspects of life, which only makes possible what we call civil life or civilised society

MAO TSE TUNG DECLARED THAT "A country's greatest wealth is its "people" which was also the chinese delegation slogan at the First World Population conference at Bucharest in 1974 This view that not only is there no conflict between population and development but further an increase in population is necessary for increase in wealth and development, goes back to the 18th century Britain when the Prime Minister Pitt declared "A man enriched his country by producing a number of children, even if the whole family were paupers"

The anti thesis to this thesis is Malthus who in his Essay on Population demonstrated that population has a tendency to increase at a geometric ratio, while food supply increase only at an arithmatic ratio, so that an incrase in population not only leads to no development, but leads to famine, pestilence and war which then bring the two-population and development-into equilibrium Social Scientists the 18th century tended to agree with him One them wrote "I do not know of any work so importa to the happiness of mankind at present as that of M Malthus It alone explains the real cause of the fearf evils both in the economical and sexual world .. the multiform miseries which are breaking the hear and paralysing the arms of so many myriads among us and making the philanthropist despair

The Indian ca

Without taking sides in this continuing controvers in which each side has both elements of truth as we as serious errors, I would start with the fact that bo the size of Indian population at near 900 million 1989 and its rate of increase at an annual 17 milli (which is the highest increase in the world) to near 10 million at 2 per cent per annum by 2000 are a development factors for various reasons.

(a) first, there is the question of food supply and other components of the living level of a person. if each person is to receive the minimum quantity of foodgrains at an annual 215 kgs, by 2000 AD, 230 million tonnes of foodgrains will have to be produced annually This is over thirty per cent of current production and it is doubtful if this increased production will be possible, without serious further damage to our environment The living level of people comprises besides foodgrains and nutrition eight other components, namely health, education, employment and conditions of work, housing social security, clothing, recreation and human freedom Foodgrains availability and supply is taken as the indicator of all the other 8 items If food supply is inadequate, then all the others will also be inadequate and unsatisfactory All this means that the economy which is not providing the minimum levels of living for the present population will be in an even more constricted position when population increases by a further 100 million

"Both the size of Indian population at near 900 million in 1989 and its rate of increase at an annual 17 million (which is the highest increase in the world) to near 1000 million at 2 per cent per annum by 2000 are anti development factors for various reasons".

(b) Second, there is the question of employment, unemployment and underemployment on which no precise data for the country is available At the start of the Seventh Plan, April 1985 with a population of 837 million, the labour force was estimated at 305 million, which means that when the population is near 1000 million at 2000AD, the work force will be 430 million The economy at present is able to provide employment in the organised sector only to 24 6 million persons which is around 8 per cent of the workforce, The other 275 million persons are in the unorganised sector, which includes the self-employed and wage-employed in the small sector and the casual labourers-all of whom are under-employed, as well as the full time unemployed who are about 5 per cent of the workforce Again the job seekers registered with the 800 odd Employment Exchanges are continuously increasing from 10 million on 31 December 1985 to 30.11 million on 31 December 1988. Without going further into this bewildering maze of employment statistics, it is clear that if the economy is not able to provide employment to its current workforce of 305 million, over half of whom are underemployed or unemployed, it will not be able to pro[illegible] employment to the workforce increasin[illegible] 30 per cent in 2000

(c) Third, there is the problem of the commitn[illegible] to alleviate the massive poverty and re[illegible] the glaring inequalities in the country, wl[illegible] the increased rate of population gro[illegible] obstructs Census data and NSS surveys sl[illegible] that corresponding to the 40 per cent li[illegible] in poverty, over 60 per cent of the an[illegible] increase of 17 million occurs within thi[illegible] per cent The efforts to relieve poverty thr[illegible] the programmes of NREP, RLEGP, D[illegible] etc are in a sense overtaken by the increa[illegible] numbers born into poverty Similarly on symbolic efforts to reduce inequality thro[illegible] IRDP and the land reform legislation programmes, the result is that, in part, pressure of population on land has, [illegible] consequence, the increase of landless wor[illegible] from 9.6 per cent of the workforce in 19[illegible] 11 3 per cent in 1982, an increase in marg[illegible] operational holdings from 17 2 per cer[illegible] 1961 to 26 9 per cent in 1981, and accordi[illegible] the RBI surveys, the lowest 30 per cent of rural families have a diminishing share [illegible] per cent in 1961, 4 per cent in 1971 and 4 cent in 1981 of all rural property while th[illegible] the top 30 per cent has increased to 72, 76[illegible] per cent during that period In other w[illegible] the size and the increase in popula[illegible] [illegible]

"That [illegible] developmen[illegible] [illegible] been exploded, with the realisation human capital is even more important t[illegible] physical capital for increased production

saving and investment will be adver[illegible] affected by rapid population growth thro[illegible] a reduction of workers productivity and t[illegible] production, that is, that population incr[illegible] and improved development cannot coe[illegible] this view has been exploded, with realisation that human capital is even m[illegible] important than physical capital for incre[illegible] production Instead a more nuanced anal[illegible] of the relation between population development is (i) a higher national sa[illegible] rate leads to higher output per worker, [illegible] some cases slower population growth (wl[illegible] is lower dependancy effect) does contri[illegible] to higher rate of savings, while in other c[illegible] reduced population growth has a neglig[illegible]

effect on saving and may even lead to lower savings rates (via the rate of growth effect), (iii) increased education of women depresses child bearing, raises family income, increases expenditure per child, so that households with fewer children may have lower savings: and (iv) fertility decline due to efficient family planning programmes leads to fewer children and results in increased savings of such child rearing families

"Without going further into this bewildering maze of employment statistics, it is clear that if the economy is not able to provide employment to its current workforce of 305 million, over half of whom are under-employed or unemployed, it will not be able to provide employment to the workforce increasing by 30 per cent in 2000".

This rather blurred picture of the relation between Demography and Development via savings and investment is due to lack of adequate appropriate data and also to the need for more research to develop the needed models

Some Indian specifics

The relation between rate of population increase and those of savings and investment in India is equally blurred. During the 70s the rate of population growth has been 2.15 per cent and the rate of savings around 20 per cent and during the 80s the population growth has been 2 15 per cent and the rate of savingss has been around the same 20 per cent The above shows that the decline in the rate of population growth between the 70s and 80s has not been accompanied by an increase in savings These are gross savings: if net savings are taken into account, for the 70s they varied between 13 and 18 per cent, and in the 80s between 13 5 per cent and 11.1 per cent Here the decline in the rate of growth of population is accompanied by a decline in savings. It is not possible to establish any clear relationship between population growth and savings behaviour in India

This discontinuity may be due to the skewed nature of the origin of savings According to NCAER, the bottom 70 per cent save 6 per cent of total savings, while the top 10 per cent save 68 per cent, and the top 5 per cent 50 per cent. The lowest 45 per cent of the urban population saved 4 per cent, while the top 10 per cent saved 56 per cent.

Conventional wisdom has it that development reduces fertility rates, that the growth of urbanisation and urban industrial change results in changing social customs which affect fertility, particularly in raising the age of marriage and of the economic costs of having children. This brings about the demographic transition, leading to NRR-1. But these broad generalisations do not seem to apply to India. Development as measured by growth rates in the averaged a high 5 25 per cent with no effect on fertility rate urbanisation has increased during 80s rapidly at 15 per cent and industrial growth shot up from 6 per cent to 9-10 per cent.And yet th is no sign of the demographic transition, with NR being now postponed to 2011

A system of incentives and disincenti

Under these conditions, in order to achieve a fas reduction in fertility as well as fecundity rate and rate of growth of population, in addition to educat particularly womens education and publicity on small family norm, improved health facilit increase in the age of marriage, expansion of w opportunities for women, and a more effici operation of the contraceptives system of producti distribution, access and availability, a system incentives and disincentives could be considered means of reducing sharply fertility rates. There i half hearted ineffective system of incentives now operation for sterilisation adopters and IUD use But to really attain the small family norm of not m than 2 children per family, it is not enough to rem barriers to contraceptive acceptance or to ind people to accept a specific method. This should done, but in addition I would propose the follow inventory of incentives and disincentives for reflecti discussion and decision, as a means of speed reduced fertility rates and population growth in country

Incentiv

For those living below or just above the pove line, those with not more than 2 children in the fan to be given

- (i) a special allowance of rice/wheat/mai edible oil, cloth and sugar,
- (ii) employment preference in government a public sector jobs
- (iii) bank loans at no or nominal interest for s employment
- (iv) preference in land allotment (pattas) building houses
- (v) one or two increased instalments of wa and special bonus
- (vi) payments of lump sum rewards transla into quarterly sums, for the adopters contraceptives, such as sterilisation, II condoms and pills

For all, particulary the lower middle classes a above with not more than 2 children per family

- (a) priority in educational facility (given the r for admission at all educational levels fr LKG to post graduate, this would be effect for those wanting education for th children)
- (b) priority in hospital care (given the o crowding of all hospital facilities in tow and cities, this also could be effective)

(c) priority in allotment of low income and middle income Housing Board flats and apartments or a land for building.

Disincentives

For those living in poverty and with more than 3 children in the family:

(a) loss of any of the incentives listed above i-vi
(b) threat of a levy for each additional child over 3 in the family

For the lower middle class and above and with more than 3 children in the family:

(a) the loss of the 3 incentives set forth above
(b) the loss of certain number of income tax deductions
(c) levy of a graded tax on the number of children increasing above 3

The element of coercion

There is an element of coercion in applying any system of incentives and disincentives to control the number of children in a family. Here there are two issues to be pondered over. There is coercion in most aspects of life, which only makes possible what we call civil life or civilised society. Whether it is not harming another person, or not stealing, or not resorting to corrupt practices, or even not acquiring the first level of education, there are penal laws which coerce us into conformity. Therefore coercion as such is not the issue, but the question to what purpose. Is the purpose the discharge by the society/government of its function to protect the welfare of the current and future generations? How far does this social/governmental function come into conflict with the right of individuals to freely determine the size of their families? One view is that incentives reduce the costs of restraint in family size for the individual, particularly for those living in poverty, and so increase their freedom of choice. On the other hand, it is held that all incentives by offering the poor, irresistable rewards reduce freedom of choice and are inherently coercive. At the ethical plane, this is an unresolved and unresoluable dilemma which was set forth clearly at the 1974 Bucharest conference's World Plan of Action which states

"All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children, of their living and future children and their responsibilities towards the community"

Decide 'freely
but also responsibly

and in light of other needs'. This contradiction is the dilemma [illegible]

Scarce resources, rising numbers

Inder Malhotra

Is it not an irony that in our country, more often than not, the poor have more children than the rich ? But, it is not with India alone. It is the poor countries of the Third World in Asia, Africa and Latin America that have unmanageable population. The author, a journalist of standing and experience, warns that if our population continues to rise, there would be hardly any worthwhile development, despite our best efforts. He explains that an exploding population and a steady deterioration of the environment would, cumulatively prove to be disastrous. The family planning programme, he tells, has generally been implemented in India by government agencies which have their own limitations. He suggests that a revolution in people's thinking can be brought only through massive popular participation. He holds the view that the regional variations demand that policies have to be tailored according to conditions prevailing in various states.

PLANNED ECONOMIC DEVELOPMENT IN this country is doubtless directed against mass poverty But it has also become something of a desperate race between production and reproduction Mercifully, productive activity has so far remained ahead of reproductive one This is what accounts for the considerable progress during our lifetime

Of course, less than half the Indians still live below the poverty line But this means that the other half-or at least 400 million live above the poverty line This was the total population of the Indian subcontinent, from the Khyber to Cox's Bazar, in 1947 and then the proportion of Indians below the poverty line was two-thirds India today has a strong industrial and technological base and the world's third largest reservoir of scientific and technological manpower There has also been a noticeable improvement in the levels of living of most Indians The numbers of buses, cars scooters, bicycles, tractors, tubewells, TV sets radio transistors an so on speak for themselves, [illegible] also living longer than their parents did

Explosion of numbers

However, a key question is whether even this modest rate of increase in per capita income, as distinct from the growth rate in the GNP, can be sustained if the explosion numbers continues at the current pace and the efforts to reduce it make excruciatingly slow progress

It is often said that the population explsion, like much else, is a global problem, the world population having reached the five-billion mark two years ago But in reality that is not so Rich countries of North America, Europe, both eastern and western, and even the pacific have reached a stage where their populations are likely to level off at manageable numbers in only a few years It is in the poor countries of the Third World in Asia, Africa and Latin America that the blight of unmanageable numbers is bound to be felt, judging by the current pattern of human multiplication

Only a few instances should suffice to indicate how alarming the impending situation can be Britain' alarming the impending situation can be Britain's population will stabilise at 59 million or only 15 per cent more than the present level Nigeria's population of 100 million, by contrast will stabilise only at the whopping figure of 532 million

ɔng-term prospects for India are only a little less ghtening Unless there is a dramatic and unexpected luction in the rate of population growth, India's pulation would outstrip China's by the year 2010 d stabilise only at 1.7 billion which was the popuion of the entire world in the early forties These : not easily dismissable digits , their message is rk

Not to beat about the bush, if population continues rise as fast as it is doing, there would be no way in iich any worthwhile development in terms of an rease in per capita income would be feasible The

ɔng-term prospects for India are only a little ıs frightening. Unless there is a dramatic and expected reduction in the rate of population owth, India's population would outstrip ina's by the year 2010 and stabilise only at ' billion which was the population of the tire world in the early forties. These are not sily dismissable digits; their message is ırk."

essure on scarce resources would be simply too uch More ominously, an exploding population d a steady deterioration of environment—more ecially land, water and forest resources— are ıtually reinforcing menaces Their cumulative ect cannot but be catastrophic

Inevitably therefore, a vigorous population control licy and an equally determined drive for vironmental regeneration must go hand in hand ither effort can succeed in the absence of the other

[illegible]

Almost since the start of the planning process in 50, if not from the morrow of independence itself, lia adopted family planning as a national policy d yet results here have not been according to pectations whereas China a late convert to the lt of birth control— is being praised today for ving successfully curbed its birth rate Why ?

Perhaps the most important single reason for ıdequate success in birth control—while death e is coming down, thanks to better nutrition and alth care at least in relative terms, which is how it ould be— lies in our failure, despite all the ɔpaganda, cinema slides and TV evangelism, to eate among parents in the reproductive age-group desire to have smaller families and ideally a twoıldren family

'Hum dau, Hamare dau" (We two and ours two) is excellent slogan and has been purveyed in the ɹntryside with commendable persistence But it s not evoked the desired response because even ɔse who might be intellectually convinced of the sirability of small families are scared that in their old age they might be left high and dry if their solitary son turned undutiful and chose to neglect them The poor in India, more in the rural areas but also in small and medium towns, look for safety in the number of their offspring, especially male children, for daughters go away and, in any case, no self-respecting Indian wants to be dependent on a daughter

In short, without some kind of a minimum social security network, even the manifest advantages of the small family would not carry conviction to a vast majority of people

Inextricably interlinked with the lack of a viable social security system is the painful question of infant mortality and a still high death rate even among the youth Parents go on producing more children because they are not sure that the ones already born would survive Others do so because blessed with a succession of daughters they are desperate to have at least one son, their only hope in the evening of their lives

It should also be recognised that much of India's family planning programme is implemented by government machinery which has its inherent limitations To be sure some officials have done better than others A few like Mr Krishna Kumar, who left the IAS to become a minister, even staged carnivals of [illegible]
control [illegible]
revolutio[illegible]
about by [illegible]
participa[illegible]

To the[illegible]
institutio[illegible]

"The poor in India, more in the rural areas but also in small and medium towns, look for safety in the number of their offspring, especially male children. This is so because daughters go away and, in any case, no self-respecting Indian wants to be dependent on a daughter."

effort with commendable zeal But their number is small in a country of continental dimensions

It is possible, indeed probable that official and non-official endeavour in the cause of smaller families might have made somewhat greater headway after all those transistors given as incentive for voluntary vasectomies did work up to a point had it not been for the great setback caused by the overzealousness displayed during the Emergency (1975-77)

The backlash after 1977 has done the vital area of family planning no good at all Coercion and other

crude tactics do not, of course, work and should surely be jettisoned (Even China has realised that a single child per family norm cannot be enforced) But the end of the Emergency in this country meant a virtual vanishing of the political will to push through population control even on the basis of persuasion Typically, the name of the Department of Family Planning was changed to that of family welfare! Twelve years on, political will has not yet reappeared on the scene. Without it, things cannot move

Demographic divide

Meanwhile, some international implications of the population problem ought not to be overlooked. It has been hinted already that apart from other divisions between rich and poor nations, there is also a demographic divide across the globe The rich nations with stable populations are likely to convert theselves into fortresses to forestall migrations from poor ones and allowing only those whose cheap labour might be needed

But the Third World would be less successful in stemming the tide of intra-regional migrations within itself The whole of this country's sensitive north-eastern region is in turmoil because of demographic influx there from overpopulated Bangladesh, formerly East Pakistan While the old problem is not fully resolved, fresh population influx from Bangladesh persists

Imagine what might happen in the coming decades. For, from its present level of over 100 million, the population of Bangladesh is likely to shoot up to 435 million in the second decade of the next century

Even that is not, however, the end of the story Far more worrisome is going to be the migration within the country, from the villages to cities People unable to find sustenance from the land, or otherwise lured by the city lights, are bound to make a beeline for urban centres in ever increasing numbers

Already urbanisation has assumed alarming proportions Calcutta has for long been a byword for urban degradation and decay ` Bombay is fast catching up with it. Delhi still retains some of its broad and verdent boulevards. But anyone who has eyes to see can perceive the suffocating pollution on its choked roads and the unbelievable squalor and filth of its jhuggi-jhonpari clusters which now house more people than does the entire city of Ahmedabad

Alarming rate of urbanisation

The direction in which the country is headed is frighteningly clear. By the end of this century 350 million Indians would be huddled in its cities. Who will provide them with housing, water, sanitation conservancy, a public transport system and minimum health care and education remains the agonising question

One more point needs to be made to underscore the magnitude and complexity of the challenge India faces The average annual rate of population growth of 2 2 per cent hides a wide variety of regional differences In the populous states of Hindi heartland, most notably U.P. and Bihar, the rate of population growth is much higher (close to 2.8 per cent) and would be higher if improved health facilities reduce the present unacceptably high rates of death especially of infant mortality It is only in states like Kerala, where the literacy rate is high, that family planning has had the maximum impact.

And yet it is the irony of situation that when a survey was made not long ago, people of Kerala clamoured for greater access to birth control facilities while villagers in U P blandly stated that birth control aids like nirodh that they were getting were more than adequate !

Two messages are thus clear and can be ignored only at national peril. First, that further procrastination over population control will have a very heavy and inexorable price in terms of lowering rates of economic development, greater political and social strife and a worsening of the plight of the poor within national boundaries as well as within the international system Secondly, given the glaring regional variations, policies will have to be tailored according to conditions in states and even districts. There is no simple all-India solution. □ □ □

"It has been hinted already that apart from other divisions between rich and poor nations, there is also a demographic divide across the globe. The rich nations with stable populations are likely to convert themselves into fortresses to forestall migrations from poor ones and allowing only those whose cheap labour might be needed."

GENERAL INSURANCE

The General Insurance Industry in India offers a wide range of policies to cover risks associated with industrial, commercial, social and personal activities. General insurance indemnifies the policy-holder for financial losses suffered as a result of the occurrence of an insured peril.

INDUSTRY AND TRADE — To cover risks of fire and allied perils, erection of plant and machinery, machinery breakdown, boiler explosion, business interruption, inland and overseas transit risks for goods, insurance on Hull and machinery of ocean going vessels including country crafts, sailing and fishing vessels, liability - public, product, employer, burglary, loss of cash etc. Low cost covers specially designed for the small scale sector also available.

INDIVIDUAL/ FAMILY — Covering personal accident including air travel, medical insurance in India and while on travel abroad, baggage insurance, insurance of valuables etc. Package cover for householders also available.

RURAL SECTOR — Covering cattle, livestock, poult[illegible] [illegible] agricultural pumpsets, failur[illegible] artisans, cottage industries[illegible]

ECONOMICALLY WEAKER SECTIONS — Personal Accident Insurance (PASS) and the Scheme huts and its contents aga are social security schemes and premium is paid by the [illegible] covers.

The Indian General Insurance Industry has over 3700 offices spread all over the country. It also operates in 31 countries overseas.

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Influence of population growth on environment

Dr. A.P. Mitra

Increase in population has varying impact on different countries. For developed countries with large deposits of unexploited natural resources, a growth in population could mean a further increase in productive manpower. But the same is not true for developing countries where pressure on depleting natural resources is already high. Moreover, the continued rising rate of human activities on the ground and in the atmosphere is posing unprecedented perils which would ultimately lead to a disturbing imbalance in the chemical contents responsible for sustaining life on the earth. Dr. Mitra, a reputed scientist, has pointed towards the emerging scenario of the changes in climate which has now become ominous. He holds that science and technology could be used as helpful tools to provide relief to the growing numbers in our country. It is heartening to note that several projects are already underway which monitor floods, classify crops, measure sea temperature and map the wastelands.

IN CONSIDERING THE CONSEQUENCES of population growth on economic development of any country or the world as a whole it might be worthwhile to concentrate specifically on two scenarios the scenario of today and that of 2050 A D I am specifically choosing 2050 because of the importance of a new parameter that must now be added to many others on the habitability of the earth This new parameter is the global warming due to a number of greenhouse molecules including carbon dioxide, methane, nitrous oxide, chlorofluorocarbons and water vapour, much of which are increasing at a very rapid rate and the matter of ozone depletion by CFCs of which the most dramatic evidence is the antarctic ozone hole In addition, there are also effects of human activities in heights above the stratopause in the upper atmosphere and the ionosphere resulting from a wide variety of human activities including spacecraft effluents, high power high frequency radio heating and effects of powerline anomalies We have now learnt to accept the atmospheric environment in its entirety from the ground to many thousands of kilometres and have recognized the fact that the different levels are coupled with each other through flow of matter and energy. Since all of these levels are in some form or other affected by human activities, the requireme of increased population growth and their effects these levels of the environment and the S&T strateg we adopt in such circumstances become critical

Pressure on sinking areas

Different countries view population grow differently For developed countries with la unexploited or semi-exploited natural resour such as Australia, the USSR and to some extent t USA, increase in population is really an increase productive manpower and is consequently encourag For developing countries with limit exploitable resources per capita availability of lan minerals, agricultural products, energy and housi continue to sink For India, we have already co from the per capita land availability of 0 60 in 1971 0 41 hectare in 1988 and this is expected to reduce 0 33 in 2001 Largescale deforestation now occurri at the rate of 0 15 million hectares per year wou make India virtually forestless in 2050 India's ow contribution to the greenhouse effect, around 4% the global injection, could rise to something of th order of 20% In the approach paper of the Scienti Advisory Committee to the Prime Minister for the 8 Plan Programmes, it has been suggested that w

should limit the country's population to no more than 970 million by 2001 A.D. Even this increase would add substantially to the rate of deforestation and to the quantum of anthropogenic and biogenic injections into the atmosphere, apart from the additional demands on conventional resources.

Some key resources and parameters of global environmental interest are given in the following tables.

Table 1

	World 1988	World 2050	India 1988	India 2050
Population (millions)	5060	14000 (estimated)	806	2400 (estimated)
Land Area (mha)	13580	13580	328.7	328.7
Per Capita Land (ha)	2.68	0.94	0.41	0.14
Forest Depletion per year (mha/yr)	10	28	0.15	0.45
Total Carbon (Mt/yr)	5000	?	63 (1.26% of world)	

In our view the objectives of science and technology *for development are threefold*

- Social Welfare (food and water, shelter, health and literacy)
- Self-reliance (technological, economic and strategic)
- High Science and Technology (frontier level areas)

To translate research into economic growth and social welfare one would need to have

Strategy for resource allocation
Manpower development
Extension and transfer facilities
Strategy for managing technological changes

A key element for resource allocation is mapping and mobilization of all resources i.e. natural, human and institutional, as in the scheme given here.

Table 2

Resource Mapping & Mobilization

Resources

Natural	*Human*	*Institutional*
Land, Water, Air	S&T Knowledge	Money
Plant & Creatures	R&D Creativity	Information
Energy	Production Skills	Infrastructure
Industrial Raw Materials	Management Capabilities	
Environment		
Coastal Zone Management		

Several Social welfare oriented technological missions are now in progress. In all of them, certain inputs of science have already been applied and long-term scientific research is also planned or has already been taken up. These provide testing grounds to evaluate the effectivenss of application of scientific research in social welfare programmes. I will *examine only one of these at this point: the drinking* water mission.

Currently the number of villages without safe drinking water is 1,62,000 and the population affected is 200 million. Even if we accept the mission objective of providing 40 litres per day per capita safe water for these 200 million people, it means additional provision of 8000 million litres of drinking water per day through cost effective technologies. In this context, two special parameters need to be kept in view: the first concerns the decrease in the per capita availability of utilizable water as population increases and the second the uncertain scenario of precipitation with global warming over the Indian subcontinent in the mid 21st century. For immediate application several S&T inputs have been provided: finding water, testing of water, upgradation of the water quality, use of sea water and development of instrumentation of various kinds. For the programme *to be really effective, there should be serious attempt* to reduce cost per unit of the instruments used for source finding or for water treatment. Consider for example the question of desalination. We have had quite a few years of activities by several agencies (CSIR, DAE, DRDO) and the [illegible] of public sector organizati[illegible] demonst[illegible] numbe[illegible] water [illegible]

"In the [illegible] Advisory [illegible] the 8th Plan [illegible] that we should limit the country's population to no more than 970 million by 2001 A.D. Even this increase would add substantially to the rate of deforestation and to the quantum of anthropogenic and biogenic injections into the atmosphere, apart from the additional demands on conventional resources".

construction. But costs are still high and the membrane efficiency needs to be improved. There has already been some progress in this area with the use of improved cellulose acetate but the total package improvement needs to be taken up on a mission mode.

There are other dimensions to the problem of water availability. The most important thrust should be on a long-term estimate on the changing pattern of rainfall in the context of global warming. Estimated warming is between 3 to 5°C as a global average. Model predictions show an increase in overall

precipitation between 7 and 11%. The largest changes will occur between 30° N and 30°S. Over the Indian subcontinent, more rain is predicted There are two sets of empirical data giving indications of precipitation under such conditions: a very gross picture of the period 4000-8000 years ago when the world as a whole was warmer by about 3°C and an analysis of data for the last few years, choosing 1937, 1938, 1943, 1944 and 1953 as the five warmest years and 1964, 1965, 1966, 1968 and 1972 as the five coldest years; the difference was 0.6°C For India there are important predictions in both these analyses. The first showed that much of India, especially the southern part, had large

"The urgency comes from the recognition that the Earth and its atmosphere, its climate and the various components of the Earth System that sustain life have been changing since the beginning of the industrial age, because of human activities, but the changes have now become ominous".

precipitation. The second showed that while there was decreased precipitation over the USA, most of Europe and Russia, there was increase in precipitation over India and the Middle East The increase in India varied from a few per cent along with the eastern coast (also in Bangladesh) to almost 100 in north west However, there was decrease in southern India and in the north around Delhi

Impending danger of imbalance

Until the 60's carbon dioxide was the primary and dominant greenhouse molecule There has been a major change since then. Other greenhouse molecules have come into the picture Methane, nitrous oxide, ozone and chlorofluorocarbons These are also found to be increasing relatively rapidly in the recent years The consequences are that these non CO_2 molecules add to the greenhouse warming by a quantity almost equal to that of carbon dioxide alone There is, therefore, need for stepping up our efforts in the direction of containing effects due to these changes

The urgency comes from the recognition that Earth and its atmosphere, its climate and the various components of the Earth System that sustain life have been changing since the beginning of the industrial age, because of human activities, but the changes have now become ominous Examples are the warming of the global climate, sea level rises, the Antarctic ozone hole, desertification, flood and soil depletion from indiscriminate and unplanned human activities. We have also recognized that there are limits to the habitability of the Earth, and its ability to support life.

To Indian scientists the programme in this area is important in many ways. The global climatic changes affect all countries, including India (although different regions are differently affected) and since our dependence on the monsoon system is more critical, one must understand the interaction of a gradually warming atmosphere with the factors controlling monsoon dynamics. Secondly, we have seen large depletions of ozone in the Antarctic and the beginning of a hole in the Arctic. If depletions spread elsewhere and the already thin ozone layer over the Indian subcontinent becomes thinner, a good part of India will be subjected to heavy doses of UV-B radiation There are two effects of such large dosages skin cancer and effects on plant species The latter may have serious consequences on the agricultural systems Thirdly, India is a major contributor to the global problem through biomass burning, slash-and-burn agricultural systems, existence of large paddy fields and cattle population In 1982, biomass burning in India injected 190 million metric tons of C or 13% of all developing countries

Another important aspect is the changing climate Evidences are mounting to show that concentrations of several greenhouse molecules are increasing 1% per year for methane, 0 25% for N_2O, 4% for CFMs, 0 5% for CO_2 Over the decade 1975-85, CO_2 has increased by 4 6%, CH_4 by 4 6%, CH_4 by 11%, N_2O by 3 5%, F 11 by 103%, F 12 by 101% The dispute is no longer whether concentrations of these climatically important minor species are increasing, but on how much and on what effects can consciously introduced constraints bring about

Hazard of coastal erosio.

A disturbing consequence of the warming is global sea level rise A global warming of 1 5 to 5 5°C is modelled to cause a sea level rise between 20 and 165 cm with profound influences on habitation pattern Such chnages are laready underway sea levels are

"The technology for collecting, processing, archiving, accessing and exchanging data is however, rather primitive in India. There is opportunity for involving university scientists in a big way".

rising by 10 cms a century A preliminary work by our scientists shows that for India a rise of this size would make the Lakshadweep Archipelago most vulnerable, the east coast of India with its lower coastal slopes and higher cyclone frequencies will have increased storm surge damage, the belt between 12° N and 18 N on the West coast will be least vulnerable but the region south of the belt will have increased storm surge damage, the belt between 12° N and 18°N on the West coast will be least vulnerable but the region south of the belt will have increased coastal erosion

There are implications on the entire agricultural system not only due to changes in temperature and precipitation, but through high CO_2 concentrations is likely to increase the growth and yield of C_3 plants by

10-50% (and of the world's 20 major crops, 16 are C3 plants).

India is well equipped for such a programme. Remote sensing technology is in an advanced stage. A network of 3 rocket ranges and the balloon facility are advantages. Systems using unmanned data collection platforms and a central processing station through satellites have been introduced. The technology for collecting, processing, archiving, accessing and exchanging data is however, rather primitive in India. There is opportunity for involving university scientists in a big way.

Another example of a modern tool in this areas is the remote sensing system. Our own ramote sensing efforts have already produced a first order map in conjunction with ground truth of the status of ground water reservoirs in India. The Indian Remote Sensing Satellite which has just been launched is providing pictures of earth resources with amazingly high precision. The potential is unlimited: monitoring of floods, disaster warning, possibilities of rescue system, use of unattended meteorological data platforms, classification of crops, measurement of sea temperature, changes in land use, and finding snow cover. Over 100 disaster warning systems have been installed in specially chosen cyclone prone areas of Andhra Pradesh and Tamilnadu. A satellite aided search and rescue programme has been deployed and wastelands have been mapped.

Consumption of energy

Energy is another area where we have to devise strategies to meet the demands of population growth. For India and other developing countries, the annual per capita consumption of energy is low, roughly of the order of 0.1 to 0.5 tonnes of coal equivalent (MTCE), in comparison to 7.0(MTCE) for Australia and 5.6 for the U.K. The Sir John Kendrew Report for the Commonwealth Science Council recommends increasing per capita energy consumption to at least 2 (MTCE) by the year 2000. This means, for an estimated population of 986 million in India at that time, energy availability should be fourfold.

One has to have three separate strategies, the first is to develop conventional energy systems with improved efficiency, the second is to have small scale decentralized systems particularly advantageous for village clusters, and the third is to develop processes and systems that reduce the consumption of energy.

On the first, there is a good deal of improvement possible with available scientific knowledge and technologies. The second strategy is one on which we have placed major emphasis by having a separate department in the government.

A summary of present achievements in this area is given in Table 3.

Cost of production

The problems of expanding this area are several. The main one concerns the cost of production. Internationally the cost has fallen from about 500 to 600 dollars per peak watt to nearly 1-2 dollars. This can compete with conventional electricity production. Our cost, however, is substantially larger than this. We have to reduce the cost per watt to make this technology viable in this country. There is also need to upgrade considerably our SPV production capability. This would mean substantial research efforts to increase the efficiency of single crystal photovoltaic cells and also pursue vigorously the current efforts on the use of amorphous silicon and polycrystalline technology.

Table 3

Non-Conventional energy scenario in India

A	SPV	
	No. Of villages	500 000
	SPV production needed (on 25% villages served by PV systems)	7 000 MWp
	Current Capacity	2 MWp (Rs 20 crore)
	Price	Rs 100 per watt
B	Wind energy	
	Potential	20,000 MW
	Achieved (mid 1988)	9.4 MW
C	Other systems	
	Biomass conservation	3MW
	Family based biogas plants	8 Lakhs ('86-87)

Solar therm[illegible] The suggest[illegible] STEC system[illegible] develo[illegible] mecha[illegible] future wind a[illegible]

With our p[illegible] problem, though substantial quantitative changes have been brought about, the average life expectancy has increased, infant mortality has been reduced and several communicable diseases have been controlled either fully or partially. ICMR, CSIR and several public and private sector systems are working increasingly effectively in the production of drugs for diseases in the country. These efforts are extremely important because indigenous production with our own technologies for conventional drugs is beginning to be competitive and this is a cost effective approach to large scale health treatment because of the reduced prices.

There are a number of areas where S&T can provide the means to face the challenge of a future population increase. Only a couple of them have been discussed here. Much will depend on what kind of strategies do we decide to incorporate in our plans to accommodate more of our people in this country in the years to come. □ □ □

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Population and agricultural development in India

Dr. S.S. Khanna

Food is the first among the basic needs of life. All the world over, a tough battle is being fought in developing and underdeveloped countries against the demon of hunger. Fortunately for us, the growth in agricultural production has always been a few steps ahead of the growth in population. Despite drought or flood, the level of agricultural gains has remained satisfactorily high The author Dr. Khanna, an expert in agricultural planning has presented a glimpse of the shape of things to appear on our rural scene during the forthcoming Eighth Plan. He tells that the experience of the preceding years points to a growth rate of about 3 per cent per annum in various agricultural products. This has to be accelerated to 4 per cent in order to meet the requirements of the rise in our population and to raise the standard of life of the people

INDIAN AGRICULTURE HAS MADE significant stride during the last 42 years after Independence Foodgrains production has increased from a level of 53 million tonnes to 172 million tonnes during 1988-89 Though the population growth has been relatively high, the need for import of foodgrains for domestic requirement has virtually been eliminated Through all economic history, a surplus generating agriculture has always been a pre-requisite for any developing country In fact India has been able to maintain her self respect around the world and also could chalk out its own path in the world's politics by remaining non-aligned, because she has been able to feed her population by enhancing agricultural production It was the most apt step of the planners to have laid due emphasis on agricultural development in the planning process started in 1951 The new Government National Front has indicated to allocate 50 per cent of its resource for rural sector particularly, agriculture during the forthcoming plans

Although share of agriculture in the Gross Dometic Production has been declining in recent years, it is still the lead sector in the Indian economy contributing 30 per cent of the GDP, providing employment to 60 per cent of workforce and sustenance to 35 per cent of the population The Seventh Five Year Plan is expected to achieve an average growth rate of over 5 per cent per annum in GDP.

Pas[illegible]
been [illegible]
whic[illegible]
basic [illegible]
a secular [illegible]
following

a Economic Factor — Agriculture, Commerce and Industry

b Basic Human Needs — Food Water, Shelter, Fu[illegible] Fibre (clothing)

c Socio Cultural Factors — Education Social Welfar[illegible] Health and Hygine, La[illegible] and Order Electric[illegible] Transport, Communicati[illegible] and Environmental Safe[illegible]

It is a matter of great satisfaction that th[illegible] programmes in a country of our dimension have be[illegible] remarkably well implemented through democrat[illegible] means We have not only pursued the objectives [illegible] economic growth but have accorded high priority [illegible] equity, social justice and self reliance Some of th[illegible] impressive gains across broad front of developme[illegible] can be listed as follows

Foodgrains production has increased 3-4 times

Yield and annual growth rate has been abo[illegible] 8 per cent

- Electricity generation is more than 35 times and more than 2/3rd of the villages of country have been electrified.
- Poverty level has come down to about 30 per cent
- Population growth rate has declined to 2 1 per cent per annum.
- Literacy status is 2-1/2 times more than as compared to 16.7 per cent in 1951.

"Through all economic history, a surplus generating agriculture has always been a pre-requisite for any developing country. In fact India has been able to maintain her self respect around the world and also could chalk out its own path in the world's politics by remaining non-aligned, because she has been able to feed her population by enhancing agricultural production."

The quality of life of socially neglected people has to be improved so that they become equal partners in the Nation building programmes. This can only be achieved if we place sharper regional focus so as to reduce the disparities. Self reliance in food will enable us to have better security and independence Therefore, we have to get a minimum of 4 per cent agricultural growth rate per-annum in the agriculture sector

The agricultural growth has however been characterised by certain imbalances:-

(a) Although assured irrigation has increased greatly the reduction in the amplitude of fluctuation in the agricultural output due to weather abberations still exist.

(b) Low foodgrains producing areas have high potential in output but have not been well managed and exploited

(c) The rural employment situation has become a matter of serious concern particularly in view of the declining employment potential of agricultural growth in better developed regions and well agricultural growth in other regions Inspite of the reasonably good performance in agricultural production the incomes of large section of agricultural population is very low and therefore the capacity to invest money to adopt modern science and technology is meagre.

(d) Even though the per capita availability of foodgrain has slightly improved over the years it is still going to be considered satisfactory particularly in view of the unabated rapid growth of population

Futuristic Approach :– The above mentioned are the only few areas which have been quoted as an example. In fact the consumption pattern are undergoing changes and quality of life is getting better. It is needless to mention that aspirations of people are much more and they are eager to take advantage of the development of science and technology in other parts of the world too Keeping these considerations in view the country has to tackle many pressing problems on priority basis. Some of these are listed below:

- Productive employment has to be generated for additional 15 to 17 million people every year.
- For overcoming regional disparities in socio-economic conditions of the people need based special programmes using system approach technique have to chalked out
- Better Management of natural resources, land, water energy and minerals keeping the ecological and environmental security in view
- Declining land holding size poses problem to sustainable agriculture.
- Increasing agricultural production and productivity in potential areas in an integrated manner so that the foodgrains production increases to an average of 7 million tonnes per annum which is presently 3 7 million tonnes per annum.

All these and other development programes require an investment of high order. It is, therefore, incumbent on all of us to see that there is increased efficiency in resources used, higher rate of savings and investment and higher export growth rate. Policy package have to be drawn to focus reduction in incremental output ratio (ICOR) and to check on the growth in Government consumption expenditure, containment of subsidies, greater financial profitability of public enterprises and above all the

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"It is therefore incumbent on us to see that the future strategies shall have to be focused more concretely on alleviation of poverty, generation of productive work opportunities, adequate supply of wage goods, provision of basic infrastructure for the poor section of our community."

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financial discipline at all level of Government, Semi-Government, Private Organisations and others

If we are to move faster towards the achievement of ultimate socio-economic goals, the most important among these is by creating economic conditions, opportunities for men and women, generating employment on a sustainable basis and to make available essentials of food, clothing, shelter, energy, clean water, education, health etc So that the quality of life gets better It is therefore incumbent on us to see that the future strategies shall have to be focused more concretely on alleviation of poverty, generation of productive work opportunities,

adequate supply of wage goods, provision of basic infrastructure for the poor section of our community.

Demographic scene

In the pre-Independence period the population in India was more or less stable with high mortality and fertility levels. During the post-Independence period decline in mortality without any corresponding decline in fertility has resulted in accelerated population growth. The annual growth rate of population during 1971-81 was as high as 2.8 per cent.

"Of course, the Government of India and State Goverments should bring forth new innovative programmes and projects so that large number of young people adopt the family norm of "Hum Do Hamare Do" (We two shall have two children."

Since Independence there has been a near doubling of the population upto 1980 (685 millions). As per 1987 Sample Registration System (SRS) estimates the birth rate was 32 and the death rate was 10.8 per thousand population Thus the growth rate was 2.12 per cent per annum. With the present trend, it is expected that while the death rate targets would be achieved, the envisaged reduction in birth rate may not take place by the end of the 7th Plan It is expected that at the most we may be able to achieve the birth rate of 29.1 and death rate of 10 4 per thousand population by the end of the 7th Plan

Population in India is estimated to be 807 million (as on 1st March, 1989) The population projections have been indicated in Table No I It may be seen that population by the turn of century will cross 1 billion marks and by the year 2006 the population will be 1082 million The data given in the table indicates that the growth rate in population shall decline from 2 13 to 1 52 However the expectancy of life at birth would have substantially increased both of male and female

Table 1

Population projections and growth rates

Period	At the end of the period		Child	Child	Growth
	Population (In Mill)	Percentage Urban	Birth Rate	Death Rate	Rate
			per thousand		
1981-86	763	25 51	33 6	12 3	21 3
1986-91	844	27 91	30 9	10 8	20 1
1991-96	924	30 45	27 5	9 4	18 1
1996-2001	1003	33 16	24 9	8 4	16 5
2001-2006	1082	35 93	23 0	7 8	15 2

India being a secular and democratic country the family welfare programmes launched are based on the principle of imparting conscious education to the people by persuading them to adopt small family norms Even though this approach is creating an impact on the mind of the people, the process is a relatively slow one Nevertheless, it is heartening to see that the number of acceptors of methods of family planning has increased to 24.11 million during the year 1988-89, as compared to 22.69 million in 1987-88 It is a 6.3 per cent increase. In fact keeping the response and the realisation by the younger people for the adoption of the small family norms in view, the population growth rate projections have been drawn (Table 1)

After having conducted detailed analysis of the performance of family planning in the various States it has been found that concerted efforts are needed to be made in 4 States-U P, Madhaya Pradesh Rajasthan and Bihar Efforts are afoot to strengthen Information, Education and Communication programmes for creating more public awareness by involving voluntary agencies, NGOs and Community for achieving the desired goals The use of media particularly 'Doordarshan' is going to be most effective so as to educate the people in the adoption of family norms Of course, the Government of India and State Governments should bring forth new innovative programmes and projects so that large number of young people adopt family norms "Hum Do, Hamare Do" (We two shall have two children)

VIIIth Plan strategies

The strateg[illegible] during the con[illegible] food[illegible] incon[illegible] agricu[illegible] integr[illegible] throu[illegible] proce[illegible] this stra[illegible]

"By integrating strategies through a system approach for various agro-climatic zones, it is envisaged that for foodgrains a growth rate of 3.3% and for non-foodgrains a growth rate of 4.5% per annum could be achieved."

- A massive land and water development plan and management so as to optimise its use and efficiency
- Through a systems approach develop agricultural plans for each region/sub-region with the help of science and technology
- Greater use of modern science and technology in the development, supply and application of inputs for higher return and output
- Special programmes and plans for a dramatic improvement of animal husbandry, fisheries poultry and other livestock segments of rural economy for each location and sub zone

Back up of appropriate marketing, agro processing, communication, monitoring, technology generation and its transfer and supply of inputs, establishment of infrastructure to each and every village of the country based upon its need and requirement

By integrating these strategies in planning processes the principal agricultural growth targets for the Eighth Plan could be as follows

	Growth rates (%) annum (Gross output)
a. Crop production	3 7
i Foodgrains 3 3	
ii Non foodgrains 4 5	
b Animal Husbandry	5 0
C Fisheries	7 0
Agricultural Sector	4 0
Value added	3 0

Growth Trends The long term growth of output in the agriculture sector has been 2 8 per cent annually from 1949-50 through 1988-89 However, the growth since 1967-68 (starting of green revolution) of all crops to 1988-89 had shown a compound rate of growth of 2 62 per cent annum Growth rate of food production during the same period was observed as about 2 54 per cent per annum During 1988 89 the foodgrain production has increased to 171 6 million tonnes Assuming that the terminal year (1989-90) level of production of foodgrain will be at the target level of 175 million tonnes, the growth rate of production of foodgrain in the 7th Plan will be about 3 98 per cent per annum

Foodgrain Projections Besides taking into consideration the trend rates and the base level of production, other parameters to be considered for making supply projections of foodgrain shall be cropped area, irrigated area, inputs used, technology and changes in productivity of different crops One has also to take into consideration the infrastructure, in terms of extension, irrigation, implementation of special areas programmes, fertiliser consumption, improvements in modern technology particularly of seed, marketing, pricing and processing of agriculture produce The productivity would be higher for various crops as compared to those in the earlier planned periods The availability of improved varieties of seed, including hybrid, varieties of various coarse cereals to the farmers is getting better than that used to be in the past There is also a shift in the approach in the planning process for the 8th Five Year Plan which would be based on agro-climatic zones/sub-zones This would not only help in harnessing the natural resources in a much more planned fashion but would also help in achieving the desired production and productivity of various crops suited to different climatic zones By integrating strategies through a systems approach for various agro-climatic zones, it is envisaged that for foodgrains a growth rate of 3 3% and for non-foodgrains a grow rate of 4 5% per annum could be achieved

Taking the following base level figures, the supp projections have been drawn for the Eighth Five Ye Plan.

Table -2

Crop production projections for 1994-95 and 2000 A

	Upto 1988 89 (Mha)	Projections upto 1994-95 (Mha)	Projections 2000 AD (Mha)
Net sown area	143	145	147
Net irrigated area	45 72	50 16	56
Gross irrigated area	60 81	68 22	.78
Gross cropped area	182 90	187 71	193
Cropping intensity (%)	128	131	135
Fertiliser consumption (M T)	12	17	23

	Base Production Figures (Mt)	Supply Projections for 1994 95 (Mt)	Dema Proje tions 2000 (
Rice	69 83	84 00-86 00	10(
Wheat	54 78	67 00-68 00	8(
Coarse cereals	33 62	38 00-38 50	4
Pulses	15 10	17 00-17 50	2
Foodgrains	173 32	206 00 210 00	25(
Total oilseeds	18 35	21 00-22 00	27
Sugarcane	202 32	235 00	31(

There are several assumptions in drawing the projections The main consideration is that t current level of fertiliser consumption is 12 milli tonnes, out of which 70 per cent (about 8 4 milli tonnes) is being applied to the foodgrain crops It likely that the fertiliser consumption will increase 17 million tonnes in 1994-95 out of which 11 90 milli tonnes (70 per cent) will be utilised for foodgra crops The average incremental response ratio f foodgrain crops works out to 1 7 5. Thus with increase of about 5 million tonnes in fertilis consumption during the 8th Five Year Plan t foodgrain production may reach the incremen level of 26 3 million tonnes Remaining additio foodgrain production would have to come fr increase in the irrigated area, modern manageme practices and incentive pricing and marketi system The multiple cropping system in irrigat areas with the concept of relay cropping is to introduced All vital inputs such as seed and fertilis shall be made available to the farmers for achievi the desired production and productivity

Pul

Over a dozen pulses are grown in an area of 22 ha adding 14 92 million tonnes (1988-89) of grain the food basket of the country These crops accou for roughly 20 per cent of the acreage and about 9 p cent of the total production of the foodgrains T productivity has however increased very margina from 500 to 600 kgs /ha. during the last 2 decades the pulses are grown mostly in dry land areas. Th per capita availability has declined from 60 7 gn

per day in 1951 to 36.2 gms per day in 1987, as against the FAO/WHO recommendation of minimum pulse requirement of 80 gms day per capita. In the coming years we have to make all out efforts to see that productivity in pulses is increased substantially.

Oilseeds

Because of the innovative programmes/projects started during the last 3 years the quantum increase in oilseed production has been witnessed by achieving 18.2 Mt during the year 1988-89. This has led to a saving of about Rs. 1500 crores of rupees of foreign exchange to the country. Needless to mention that the per capita consumption pattern of edible oil in the country has almost doubled during the last 30 years from a level of 3.2 to 5.9 kgs per person per annum. Keeping the base level production of 1988-90 of 18.35 million tonnes it is anticipated that the production of oilseed should be of the order of 20.5 and 27 million tonnes by 1995 and 2000 AD respectively.

Sugarcane

The production of sugarcane has increased markedly but at the same time the consumption pattern of sugar doubled during the last 30 years. It was 4.7 kgs per person in 1961 and has increased to 11.1 kgs per person in 1987. There is a tremendous scope of increasing the production and productivity of sugarcane in UP and Bihar. Furthermore, the recovery percentage can also be increased by installing the required number of sugar mills in main sugar growing areas and also by modernising the old sugar factories. The research back up is being strengthened and the supply of improved varieties of sugarcane to the farmers are being dovetailed, after having treated these against red rot and other diseases. Keeping all these gamuts in view it is expected that the sugar cane production should be of the order of 250 and 310 million tonnes by 1995 and 2000 respectively from a base of 202 million tonnes.

Epilogue

Strategies adopted for increasing agriculture production through a network planning approach reveal that Indian agriculture has turned the corner and a qualitative change has come to mark India's capabilities in attaining the self sufficiency in foodgrains. The agricultural output has therefore grown at 2.99 per cent per annum (combined) between 2 peaks of 1983-84 and 1988-89 and for trough years of 1982-83 and 1987-88. It was 3.1 per cent per annum. This experience suggests that agriculture is growing at around 3 per cent per annum. The challenges are to accelerate this to 4 per cent per annum in future so as to meet the food requirment of growing population and for better quality of life of people. It is therefore incumbent on us to see that we produce a minimum of 210 and 250 million tonnes of foodgrains by 1995 and 2000 AD respectively for better food security. □□□

Human Resources Both An End And Means

Prof. V.G. Nandedkar

While planning for progress, we can not afford to ignore the importance of population. It is for the people that plans are drawn up. Trouble starts when the population outpaces the pace of development. This is happening in all developing countries and our country is no exception. Prof Nandedkar, who teaches political science, while presenting the population profile, gives sound reasons for the many problems that are being faced today by the developing nations of the world. He tells that balanced development is eluding these countries because political revolution came before industrial revolution. The author maintains that the political changes aroused the expectations of the people while the governmental machinery in these countries is ill-equipped to tackle the problems of development in the frame of social justice. He is, however, hopeful that proper manpower planning would prove more productive and would help to reduce its pressure on future growth.

THE THIRD WORLD COUNTRIES are exposed to the process of change operating at the national and local level simultaneously, extending and expanding both geographically and socially, affecting both the form and functions of groups and organisations, and evolving new patterns of living and thinking. The ruling elites of these countries are influenced by the liberal or revolutionary philosophies of the West either of their earlier colonial masters or of their allies in their battle against Imperialism They have been equally impressed by the industrial strength of the West supporting its production machine. Leadership of the third world countries is therefore endeavouring in every way to introduce change on this pattern and to strengthen its process-the process of development For its leadership development therefore is a recurring theme and a common idiom in the vocabulary

Development -an interlinked process

Development basically is change with a predetermined direction affecting various segments of the society Politically it expresses faitl individual development in the context of liber collectivist philosophy as adopted by the gover elites It also encourages individuals' cons participation in its decision-making and dec implementing process Economically it aim increasing goods and services and increas putting these into distribution network. It is gu by the concepts of economic efficiency (cost-be relationship) and follows growth indicators of Administratively it works for functional specialis amongst its operating organisational structures tries to support it by the concept of professional Collectively it makes the whole pro communitarian with increasing social mobility with natural mobilisation of community associat makes the whole process participative and pervas stable and enduring

Planning and developm

On the eve of independence, India as a third w country was stuck down in her efforts of dev

...nt with low capital formation, low per capita income, low literacy rate including low functional literacy and low level of production organisation; but with very high population growth , high unemployment and under employment mark

Planning has not been new to Indian leadership and in administration a department of planning was constituted even before independenc After independence, a full fledged planning machinery was envisaged in the establishment of Planning Commission at the Centre with Prime Minister as its Chairman. It works on a comprehensive data collected, compiled and classified on different indices of development and provides rationale for plan targets and justification for plan implementation The National Development Council provides political dimension to the process of planning and makes it more responsive and therefore more adoptive Member States also have similar machinery and their plans are discussed and finalised within the broad frame work prepared by the Planning Commission

"Planning has not been new to Indian leadership and in administration a department of Planning was constituted even before independence. After independence, a full fledged planning mahcinery was envisaged in the establishment of Planning Commission at Centre with Prime Minister as its Chairman."

The Prime objective of planned development is naturally economic growth-increasing the production of goods and services and increasing levels of individual consumption To sustain this process, the economy equally needs increasing levels of capital formation India adopted planning strategy with a positive role for public sector to realise this goal'

Human resources and development

Human resources are an important variable in the overall efforts of development. Human beings are ends and means at one and the same time and give meaning and justification to the whole gamut of activities The objectives of five year plans therefore lay emphasis on policies of employment creating job opportunities as well as modernising production processes for higher per labour output The plans also aim at increasing general literacy and functional literacy by providing facilities for acquiring technical skills This is in addition to literacy drives Basically committed to social justice, the plan programmes take special care of backward classes and disadvantaged and unorganised groups of the population and draw them into the main stream of development Various poverty eradication programmes like the National Rural Employment Programme (NREP) 6th Plan, the Integrated Rural Development Programme (IRDP) 6th Plan, Rural Landless Employment Guarantee Programme (RLEGP) 5th Plan, The Jawahar Yojana (7th Plan), Development of Women and Children in Rural Areas (DWCRA) 7th Plan. The National Scheme of Training of Rural Youth for Self Employment (TRYSEM) 6th Plan, Rural Training and Technology Centre (RTTC) 7th Plan, collectively strengthen functional skills of working population and aim to make production efficient. Population adequate and adequately qualified is an asset, a productive asset

Population profile

Population of developing countries has always been growing and growing at a faster rate This complicates the problem of development and the problem of balanced development In these countries political revolution has preceded industrial revolution Socialist revolution has increased anticipations from the people But Governmental machinery in these countries is under-developed and ill-equipped to tackle the problem of development with social justice

India today supports nearly 15 p c of the world population Its population has been steadily increasing and the decadal growth rate has therefore been consistently rising

Year	Po
1951	
1961	
1971	
1981	

Normally po[illegible]
and retained their population ranking like Uttar Pradesh and Bihar retaining 1st and 2nd rank containing 16 18 p c and 10 20 p c respectively of the total population (1981 census) Only Gujarat ranked 9th in 1971 census and was placed 10th in 1981 census.

	Decadal population 1961-71	Growth of 1971 81	P C 1961-71	Decadal growth 1971-81	Rank 1971 1981
India	108,924,881	137,025,040	24 80	25 00	–
Gujarat	6,064,125	7 388,324	29 39	27 67	9 10
Rajasthan	5,610 204	8,496,056	27 83	32 97	10 9

The proportion of rural population to the All India population has fallen It was 80 09 in 1971 census while it has been 76 69 in 1981 The proportion of urban population stands now to 23 31 p c of the total population Urban India, has become a reality and the types of demand and their priorities demand more room in the allocation of resources and production of goods and services

The proportion of cultivators to main workers and that of agricultural labourers to main workers have also declined Cultivators were 43.08 p c. to main workers in 1971, now stand 41 58 pc and agricultural labourers 26.69 pc in 1971 now are 24.94 p.c. to main workers (census classification of economic categories), Sex-ratio has been improving so also female participation (1971-12.06 pc, 1981-13.99 p.c.). Similarly there has been a steady increase in literacy rate.

Literacy	1971	1981
India	29 45	36 17
Male	39 45	46 74
Female	18 69	24 88

"Basically committed to social justice, the plan programmes take special care of backward classes and disadvantaged and unorganised groups of the population and draw them into the main stream of development."

Distribution of main workers by industrial category 1 to IV) has come down from 70 22 pc in 1971 to 66.22 pc in 1981. While the share of male main workers has gone up-in household industries it has marginally declined. In the tertiary sector (category VII to IX), the share of male main workers has gone up. Women share in manufacturing, processing, service-repairs, household has gone up from 4 24 p c. in 1971 to 4 59 in 1981, in other household acitivities from 2.77 to 3.55, in construction from 0 65 to 0.80 (secondary sector activities). The table indicates a steady growth of activities in secondary sector for main workers both male and female-the rate is promising but not encouraging

Distribution of Main workers by Industrial Category

	Category	*1971*		*1981*	
		Male	*Female*	*Male*	*Female*
I	Cultivator	45 90	29 84	43 70	33 20
II	Agricultural labour	21 54	50 86	19 56	46 18
III	Livestock, forestry, fishing	2 24	1 91	2 34	1 85
IV	Mining and quarrying	0 54	0 40	0 62	0 36
V	Manufacturing processing, service repairs, household	3.42	4 24	3 18	4 59
	Other than household	6 70	2 77	8 92	3 55
VI	Construction	1 36	0 65	1 81	0 80
VII	Trade and commerce	6 37	1 78	7 33	2 04
VIII	Transport, storage and communication	2 86	0 47	3 32	0 38
IX	Other services	9 07	7 08	9 22	7 05

Population and development strategy

Population has functional and dysfunctional effects. Healthy and better equipped population can support industrial growth while poor popul would make country more poor. Applictio Malthusian law is ruled out and a positive str would be (a) the adoption of family we programmes (b) implementation of manp planning (c) the diversification of prodctive acti in the secondary and tertiary sectors.

Family welfare programmes envisage a reproduction rate of 1 pc by 2000 AD. In demogra transition; high growth potential of the first sta realised in the high actual growth in the second s but the third stage is characterised by low birth low death rate, small size families all leadir decline in the rate of population growth. In areas primary health centres provide a ho services under one roof. A massive nutrition gramme with awareness of community heal operated through governmental and non-governm agencies. The special Nutrition programme c children between 0-6 years and pregnant womer nursing mothers.

In manpower planning emphasis on investme human capital is aimed at This is realised thr health and educational programmes operate rural-urban areas This will improve adaptab productivity and mobility of labour. The 8th aims at universalisation of elementary education eradication of illiteracy in working age popula There would be an extension of 'Open Le System' Schemes like DWCRA, TRYSEM, REL CRTTC, NERP have a positive role to play in this as rural unemployment, underemployment disgu unemployment is its main target. The 8th expects employment growth rate to reach 3 p c

Diversification of secondary and tertiary activ has been aimed at from the Second Five Year I Within th frame work of Mixed Economy the p give priority to public sector activities which ai create infrastructure for development In 1951, t were only 5 non departmental public enterpi with an investment of Rs. 29 crores. By 1983-84 the n ber of public enterprises (Central) has gone to with a total investment of Rs. 42,000 crores, Khadi village industries also occupy a vital place in process of industrialisation and growth with bala With a total investment of Rs. 2000 crores in the plan it provides employment to nearly 50 lakh peo

Development is a multivariate phenomenon population policy one of its variable. Proper manpo planning would definitely make the available hu capital more productive and would help to reduc pressure on future growth. Properly linked with strategy of industrialisation and modernisat population policy would open this vast pote growth resource available to the third w countries, extending the reach out of developn benefits and making its face more humane. □ □

India's population

Rapid population growth in India has created gigantic problems which are manifested in political, social, economic and psychological upheavals that are frequently occuring all over the country. The low income groups who have larger families and constitute the majority of the population generally become the victim of all these upheavals. Not only this, but the basic unit of the society, the family, in a majority of cases, faces innumerable conditions of material and cultural deprivation and therefore fails to fulfil its obligations to help the new generation in acquiring the qualities necessary for leading a good life. This results in the retardation of not only the welfare of the family but also of the momentum of development of the nation as a whole. □□□

(B. Mamoria)

Rapid population rise hampers growth

Dr. R.S. Kurup

The idea of maintaining a balance between population and available natural resources is not new. That the rich had less fertility and the poor, more, was also noticed much earlier. The era of colonisation introduced the element of migration in population figures. The migration generating countries had developed their economies at the expense of others which are underdeveloped now and are called developing countries. Thus a vicious circle has beeen created. Under-development affects population and population growth has its adverse effects on development. The author Dr. Kurup, an expert on population statistics has elaborately established the link between literacy and population increase, supported by authentic figures. Discussing in the historical background of the economically developed countries of the world, he has convincingly argued the case of reducing the birth rate. In the light of the details relating to various states of India, provided in the following piece, it becomes clear that states with poor percentage of literacy are economically much backward as compared to states with higher rate of literacy. He hopes that the recent efforts in improving the literacy levels of the people would be definitely fruitful and would bring down the rate of reproduction.

INTEREST IN THE STUDY OF inter-relations between development variables and the population variables was there from time immemorial, thanks to the human quest for resources and conquest of nature. When an equilibrium is almost in sight between population and resources, there is a slackening of efforts except in the modern era when prospects of new problems are always conceived of again in the relative achievements of developments in the various parts of the world, constantly attempts at establishing regularities in the various contexts defined by one or more of developmental variables continue unabated, correcting modifying or adjusting proven theories, with the availability of more and more information of a specialised nature. It is therefore becoming a complex problem to deal with the relation between development and population at any point of time in respect of any given set of conditions and areas in view of the transienc the former with reference to the latter-with passage of time and the international dependenc many crucial aspects governing the understandin human nature and experience in the human or r human including the environmental activities, latter having a very significant impact on the lif man in the universe.

An attempt at delineating the reciprocal relati between development and population will be m here in so far as the impact on the developing developed countries of the world are concern with the available information, with spe reference to India. This is not considered exclusive or exhaustive treatise dealing with interrelations in view of the multiplicity of variab but a major set of factors in both the groups

lysed to yield the patterns that can explain most of the variations in the variables As a point of departure, introductory explanations of the realm of variables will be given, not to say definitions of the important variables under each topic; this again, is necessitated by the immensity of the topical variable.

Variables that matter in the analysis

Development can be construed as expansion of activities in the various fields with a view to have added benefits to the subjects covered under and in the overall sense There cannot be a stagnant or negative state under its connotation The prime fields are economic and social though political, cultural, religious or other topics might be relevent.

"It has been pointed out that in the initial stages of demographic evolution, birth and death rates used to be very high with a very small difference which made the population to grow slowly. Later, efforts to decrease the death rate through the trial and use of herbs, roots, fruits, leaves etc scientifically or by common consent were pursued and there was a gradual decline in death rate."

Population, on the other hand, can be studied through its absolute size, growth and age distribution besides the factors which govern these, namely fertility, mortality and migration The present analysis will consider these aspects in so far as data permit starting from the time honoured theories of population in relation to resources There are many other important variables which would not be dealt with here because of limitations of space

From very early times, the relation of population and resources has been thought of as one of restricting the size of the former with the availability or possibility of harnessing of the latter It was about the third Century BC that the Greek Philosopher Plato established a numerical estimate of population for the city-states of Greece based on the knowledge of the resources likely to be harnessed in each, in terms of the major ones but conceived of as theoretical entities and obtaining a product of the prime members in respect of each. This exercise however, could attract the attention of only a few within or outside the country It was long afterwards in the 15th-16th Centuries when a similar attempt by an Egyptian Philosopher Ibnkhaldun and Italian Giovani Botero were known to the world as expounding the limitation of population size and growth set by the availability of resources When finally Malthus came out with his population theory in 1798 combining the hypothetical growth of population and resources, many could not agree with him about implications to the imbalance and the possible remedies Later events proved him right in the developing world and wrong in the developed world the factors of fertility and mortality were specific in his analysis while migration which was not so important, at first sight, also proved important for the developed world. It was, in fact, during the post-Malthusian era that development per se had its effect on factors of population growth. The rich had less fertility, the poor had more; natural checks operated through increase of mortality which also affected the less advantaged more than the others and the impact of war, famine, pestilence, natural calamities was more on the poor Ideas like automatic adjustment by mankind or innovations to cope with the imbalance between man and nature were put forward by anti-Malthusian theorists.

The variable of migration affected development of the economy not just reducing the consumer-population but by enabling the innovators who left the European Countries to really colonise the countries to which they migrated and later importing the scarce raw materials for the industrial revolution in their home-countries and again, marketing the finished goods in these countries, themselves This had been continued for atleast 2 to 3 centuries by which time the migration generating countries had developed their economies to a very large extent at the expense of the others which are now underdeveloped or are called developing ones. as a sort of consolation. This under development affects population growth and population growth affects their development. A corollary to this is what could be found in the rise in the living standards in the western countries and later in Eastern Europe after the reductio

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The trends in the growth of population in the western world have revealed an interesting pattern of a transition which affected the birth and death rates in the countries concerned and later in countries of similar levels It has been pointed out that in the initial stages of demographic evolution, birth and death rates used to be very high with a very small difference which made the population to grow slowly. Later, efforts to decrease the death rate through the trial and use of herbs, roots, fruits, leaves etc scientifically or by common consent were pursued and there was a gradual decline in death rate The transition actually started with this and population growth also rose to higher levels. The gap widened with lowering the death rate and without any significant decline in the birth rate; there was a possibility of population explosion The people, by their own efforts, eventually controlled their fertility and reduced the birth rate, so much so, the gap between the birth and death rates narrowed and population growth slowed down. This was the

pattern that was there in the western countries right upto the start of the Second World War It may be remarked here that Malthusian theory was propounded during the second stage of the transition when the gap between the birth and death rates was widening.

Instead of directly linking the economy with population, usually the changes in the economy from the primitive agrarian to the modern agrarian with

"The agricultural and industrial revolutions led to a higher levels of living including larger incomes and better conditions of housing and clothing. The by-product of prosperity was improvement in sanitation and other public health measures, advancement of medical knowledge, and the spread of general education –all important determinants of mortality levels."

the market mechanism and wilful attempts at agricultural development and then to the final industrial stage are explained separately. The doubt is still there as to which is the antecedent and which the consequence Both development and population are said to be the' determinant as well as the consequence of the other

The decline in the crude birth rate was interrupted around the early nineteen thirties and there after there was a slight upsurge. Later on, the birth rate increased markedly– in some, the crude birth rate fell below 20 and reached a minimum, in the 1930's but increased appreciably there after especially during the years following the depression and those following immediately after World War II. The upward trend was reversed in most countries by the end of the 1940's, the post war marriage boom was also cited as a reason for the baby boom.

The demographic transition theory had therefore stressed the inter-relations of economic development with population size and growth; there are also aspects of social development like improvement in education, status of women etc and religious development, in the sense that the less religious the people became, the more conscious they will be of the need to curtail the number of children through voluntary methods. All these together resulted in a social morphological revolution which is often said to be the Kingpin of demographic change. The industrial man has in fact beeh shaped by all these factors together. It would be interesting to conceive that around the end of the 1940's the birth rates in Africa and Asia (except Japan) were between 40 and 45, United States and Canada 25, Latin America 40, Eastern Europe and Oceania 28, Southern Europe 23 and North-West-Central Europe 19; Japan was still having 31 as birth rate.

As already pointed out, there was a decline in death rate in the western countries and a low rate during or even before the first half of the 19th century and gathering momentum by the end of the Century. agricultural and industrial revolutions led to a hi levels of living including larger incomes and b conditions of housing and clothing. The by-produ prosperity was improvement in sanitation and o public health measures, advancement of me knowledge, and the spread of general educatio important determinants of mortality levels. Du the last 100 years, the progress was du development in the field of health and medi while earlier it was social and economic developn per se The continued decline in general death has brought about a gap between the rates fo well-to-do and the poor The greatest decline among the infants and young children. The yo age-distribution caused by high fertility had been saved of mortality because of the developm that took place. Future declines will depend u developments in the medical science responsibl lowering middle age and old age morbidity, mortality and raising standards of living of the and saving them from the toll of death in all brackets

In the context of the decreasing mortality morbidity a natural increase in fertility will predicted but with social and economic developm and their impact on other fields like fertility or fa size control was there and overall births also decl in the developed countries The long-term effe development had thus been a decline in birth death rates As regards migration the trend positive during the middle stage of the transition later there was a consolidation of the same without much of addition to the list of migrants significant manner However, there had been nat increase among the western migrants to developing countries though at a slightly lower as compared to the natives

Demographic transition re-exami

It was natural that the post war era should hav own say in the shape of things to come and one o significant facts has been the restatement of demographic transition theory in the non-west countries. It can, however, be seen that in East Europe the transition was timed later and with all major ramifications that accompanied the sam the West But in Japan, there was a real change the sense that after the destruction of the Japanese cities and the collapse of the economic military power of Japan, there was a re-emerge which saw the efforts to protect the quality of population and thereby a reduction of the fert rate-while decline in mortality was almost paralle the happenings in the west, supported of course, indigenous techniques of morbidity and morta control. The emergence of Japan as a major wo power just before the second World War was possi through the reduction in mortality at all levels and rapid socio-economic development, much above

neighbouring countries who had thus been kept under the Japanese Yoke for some time. The Eugenic Protection Law passed and implemented after the Second World War was responsible to bring fertility transition among the Japanese and the economic development that followed and is continuing can be said to be the results of such a transition. This does not mean that Japanese fertility decline did not start prior to the Second World War. In fact, with the development of Japan as a major power, economically and militarily, fertility of the Japanese began to fall but the full transition was achieved only after the people adopted abortion as a method of preventing births, thanks to the Eugenic Protection Law. Japanese birth rate thus came down to below 20 and was comparable to Western levels. Later by the end of the 1970's the law was repealed and Japan came to the normal stream and the people began to adopt the planning methods. Here, the re-statement of the transition rests and the method adopted as preventive medical intervention which is also a medical development though different from the usual developmental process in social and economic fields and even in the field of health and medicine.

There are however, other cases of population in which the development is of a lower level as compared to the Western or Japanese, levels but the methods adopted are similar to the West and Japan, though abortion is not adopted as a regular fertility-controlling mechanism. Countries like S. Korea, Taiwan, Hongkong and Singapore are often cited as examples of these. Of these except for South Korea, the others are small populations in Islands. Singapore is also taken as an Island at the tip of Malaysia. With small developments in their economies, using the Western methods they reduced their mortality and later their fertility ; in the meantime there was social development also like educational development and improvement in the status of women who were mostly employed outside the home. With nearly 6 deaths per 1000 population and less than 20 births these populations had a net reproduction rate of less than unity, and this had prompted Singapore to become pronatalist in order to have an equal replacement of fertile women in the various generations.

A third set of countries and parts of countries which have also patterns slightly different from those that prevailed in the West before the Second World War also deserve mention here. These include Malaysia, the Island of Bali in Indonesia, Thailand, the State of Kerala in India and Srilanka. These countries (or parts) had reduced their mortality to verylow levels for some years now and the efforts at reducing the birth rates are bearing fruit. It is worth mentioning here that the development of the economy, society, medical and health fields etc in these areas is much less than the second group of countries referred to above. A peculiarity of the State of Kerala has to be pointed out here ; the development in the economic field is quite insignificant, but there has been improvement in the social field, like improvement in literacy and education, status of women, migration to foreign countries for job-hunting and improvements in health and longevity of the people. The State is rapidly approaching the goal of net reproduction rate of unity. Control of birth rate has been achieved by increase in age at marriage and practice of family planning, conventional contraceptives by the higher groups of schooling and sterilisation by the lower. Srilanka has also more or less similar better developmental aspects but inclusive of slight economic improvement. The island of Bali has been operating various folk media for motivation purposes in the field of family planning in quite a significant manner. These areas except Kerala have been pursuing non-sterilisation methods for some time now. In India, however, the sterilisation is even now the major method.

The example of China is also unique in that with a minimum of development death rate has been reduced and a stationary population is being achieved. These illustrations point out the need for a re-examination of the demographic transition theory but the relation between development and population becomes evident.

Developing countries scene

We can visualise all the countries in Asia other than those ment
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except in a few small states with slightly higher rates
As regards economic and social development there are countries with per capita incomes above 200 dollars, around 200 dollars and below 200 dollars. In the field of education very low levels of literacy especially female literacy prevail in some of them (India is an example) while in some others above 50% literacy is there (some of the Latin Amercian countries). Efforts are there to improve the economic and social standards of the people of these countries but it will take a long time to achieve these and by that time there will be a doubling or trebling of their populations. As a consequence dovetailing of plans for economic and social development with those of health development and population control has been a usual phenomenon in these countries.

The future in relation to the past

Development of the economy has been restricted very much by the lack of capital to be spent for the creation of infrastructure, heavy industries etc which will regenerate capital, simply because the population

growth is so rapid and high that very large part of the available capital and resources will have to be spent for duplication of facilities for day to day life and for production and/or procurement of food, shelter and clothing for the people. Full employment cannot be conceived of because of the large influx of educated and uneducated persons in the labour force. As a result the per capita income levels are low and the disparity between the have's and the have nots is large. This being the position currently and in the recent past, the future can only be bleak unless we are able to check the growth of population without taking into consideration the effect of development and population, for the time being. The very young age-distribution should not be allowed to continue With a check on the fertility or birth rate, the age-distribution can be changed. In order to reduce fertility all the determinants of fertility like age at

"Full employment cannot be conceived of because of the large influx of educated and uneducated persons in the labour force. As a result, the percapita income levels are low and the disparity between the have's and the have not's is large."

marriage, family planning methods, breast-feeding abortion, should be employed alike For this, again education is necessary. To make all the illiterate, literate the only method is non-formal education This has to be encouraged urgently.

It may be recapitulated here that while the causes of poor development performance can be traced back twenty years, the links between population and development in recent times can be understood only by going back even further into the past The second half of the 20th century stands foremost for remarkable growth of numbers-in the first year of the calender (A.D. one) the world had about 300 million people; after 1500 years it doubled. From 1750 until well into the 20th century, the rate of growth was 0 5 per cent per year, faster in the developing and slower in the developed countries. In about 250 years i e by 1900 world population reached 1 7 billion, growth rate was 0.5 to 1 per cent until about 1950 and 2 per cent there after. World population grew to 4 billion in 1974 and 5 billion in 1987. It is likely that in 1999 there will be 6 billion and in 2010, 7 billion. The growth rate never exceeded 1 per cent in Europe since 1950 and seldom exceeded 1.5 per cent in North America. By the 1970's the growth was near replacement level or even below in most areas. The postwar experience of the developing countries was unprecedented. Above 2 per cent population growth changed to a peak of 2.4 per cent in the 1960's, now it is around 2 per cent again. The population momentum will continue even though couples may be reducing the average number of children from 4 to fewer ones. The babies born 20 years ago and living now because of reduced mortality are now in the child-bearing ages-the number of women marrying and bearing child[illegible] continue to increase till the birth rate is drastic[illegible] checked.

Uptil the 18th century there was no change in [illegible] expectancy or literacy rate or in living standards, [illegible] a gradual change occurred since 1850; when w[illegible] population trebled, per capita income in real te[illegible] increased six times, life expectancy rose dramatic[illegible] and education became widespread; these w[illegible] especially noticeable in developing countries a[illegible] 1950; the levels of school enrolment and [illegible] expectancy in poor countries are higher now t[illegible] those of the developed ones eighty years ago.

Though most people are better off today, for m[illegible] the gains are small. The countries with lower le[illegible] per person were increasing their numbers faster [illegible] absolute increase in income have been smaller t[illegible] in others By 1980, 79 per cent of the world's t[illegible] output was produced in the developed count[illegible] with 25% of the world population Only 5 per cent [illegible] shared among the 47 per cent living in low inco[illegible] countries, such as Bangladesh, China, In[illegible] Pakistan and most countries of tropical Africa. Ra[illegible] population growth is thus a development probl[illegible] As already pointed out, it exacerbates the awkw[illegible] choice between higher consumption now and [illegible] investment needed to bring higher consumptio[illegible] the future. Also, it threatens the balance betw[illegible] resources and the people It is hard to manage [illegible] adjustments that accompany and promote econo[illegible] and social change The costs differ among count[illegible] in the fields of education, health etc Removal [illegible] poverty is also delayed because of the rapid growt[illegible] members

The middle income countries of East Asia and [illegible] Pacific achieved gross growth rates of dome[illegible] product of 8 6 per cent a year between 1973 to 1[illegible] comparable to that achieved between 1960 and 19[illegible] India also maintained its growth. Other regions [illegible] less well especially sub-Saharan Africa-populat[illegible] growth was much higher so that economic grow[illegible] was less impressive, in sub-Saharan Africa, per cap[illegible] incomes fell between 1973 and 1983 Here gr[illegible] domestic income should have been considered [illegible] more relevant for comparision The old and t[illegible] recent recessions had their severe impacts in th[illegible] low income countries

The prospects of growth are however, not at [illegible] bleak In India the recent estimates have show[illegible] growth rate of 6 per cent annually during the curr[illegible] plan and a likelihood of establishing a similar tar[illegible] for the next five year plan.

In the immediate future the industrial econom[illegible] will have a GDP increase of 2.5 %, develop[illegible] economies 4.7% The implications of the beneficiar[illegible] are best understood if the GDP rates are adjusted [illegible] the widely differing population growth rates of t[illegible] various regions. Between the two extremes per cap[illegible] income growth ranges from 2.7 to 3.5. per cent [illegible]

...veloping countries The major exporters of manufacturers grow fastest, leaving the rest of the developing world further and further behind

It is in the low income countries-especially those of Africa that slow growth does most to perpetuate and concentrate poverty In low income Asia, however, prospects look brighter especially as population growth continues to slow In India the growth rate declined from 2 2 percent during 1971-80 to 2 1% there after. The birth rate has declined from the high level of 41 7 in 1951-60 to 32 by 1987and death rate from 22.4 to 11. An analysis of the scenario in the Indian States vis-a-vis development measured by the per capita income and per cent literate as economic and social indicators would be appropriate here. It may be noted that the scale and level of development in the states are much lower than those in the previous discussion and there is not even a semblance to attainment of the old western levels which co-varied with the population factors

The Indian States

The following table (table given separately) gives the birth, death and infant death rates in 1987 in the rural areas of the major states in India, the per capita income and the percentage literate from 1981 census The percentage practising family planning and births attended by trained health staff are also shown as the development indicators It is clear that the states of Punjab, Maharashtra and Tamil Nadu with high per capita incomes have lower rates as compared to others except Kerala and have somewhat high literacy percentages. Kerala stands separate with the highest literacy percentage and lowest of vital rates. The other Southern States have also somewhat lower rates than the Northern States which are low in income and literacy and high in vital rates

The prospects are that the State of Kerala might reach the net reproduction rate of unity very early, may be by 1991 while Tamil Nadu, Maharashtra and Punjab may take upto 1995 The third set of states Karnataka, Andhra Pradesh, Orissa, West Bengal and Gujarat may take upto 2000 AD or even slightly more time in this and the BIMARU States (Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh) and Haryana will be very much behind Though these are economically backward they are backward as regards literacy also Female literacy is only 8 per cent in Rajasthan as per 1981 census The status of women is very low, their age at marriage is low and per cent working is also low, those who work are usually in the agricultural or lower level service category

Recent efforts at improving the literacy levels of the people, especially those in 15-34 years through non formal education, the introduction of population education for youth in school/college and out of-school, special programmes for the drop-outs, poverty alleviation programmes, employment programmes are all aimed at improving the status of the people so that they may be able to utilise health and family planning facilities to their advantage, become aware of the benefits of marrying at higher ages, restricting the number of children etc and become healthy in the real sense-physically, mentally and socially Though India wants "health for all" by 2000 AD and rea[illegible] unity by [illegible] a little [illegible]

Table showing economic, social and indicators for 15 major Indian

Sl No	States	Births attended by trained persons %	Rural Birth rate	Rural death rate per 1000 persons	[illegible] capita income 86-87 (Rs	[illegible] All %	Female %	[illegible]cted 86-87
1	2	3	4	5	6	7	8	9
1	Kerala	83	21	6	2371	70	66	45
2	Tamil Nadu	48	24	11	2732	47	35	46
3	Punjab	71	29	9	1719	41	34	62
4	Maharashtra	29	30	10	3793	47	35	54
5	Karnataka	45	30	11	2486	38	28	37
6	Andhra Pradesh	33	30	12	2333	30	20	36
7	West Bengal	26	34	10	2908	41	30	29
8	Gujarat	47	31	11	3223	44	32	49
9	Orissa	17	31	14	1957	34	21	36
10	Assam	18	34	12	2204	28 (1971)	19 (1971)	27
11	Haryana	78	35	9	3925	36	24	53
12	Bihar	18	37	14	1802	26	9	21
13	Madhya Pradesh	13	37	14	2020	28	16	36
14	Rajasthan	11	36	12	2150	24	11	26
15	Uttar Pradesh	17	39	15	2146	27	14	25

Source 1 Family Welfare Year Book, 1985-86 Dept of Family Planning, Govt of India
2 Sample Registration Bulletin (1987 rates) 1989 Registrar General of India

Indian family planning programme- an appraisal

Prof. K. Srinivasan

The major constraint in any democratic planning is the absence of any element of compulsion or coercion. This is why a country like China could impose the norm of "one child one couple" and achieved a considerable degree of success in containing the size of her population. Whereas, in India, we were not able to reach even the moderate fertility goals postulated in any of our six Five-Year Plans. Prof. Srinivasan, an authority on demography, cautions that if the present growth rate persists, India would overtake the population figure of China and would gain the dubious distinction of being the most populous country in the world by 2024 A.D. He argues that undue stress has been given to the family planning programme relating to women of older age groups. He thinks, that there is an urgent need to concentrate on young married couples, preferably those who had given birth to a child. The author points out that illiteracy has been the villain of the piece and has done great harm to the cause of population ... Urgent emphasis on primary school education, pa... immediate need of the hour.

INDIA ATTAINED HER POLITICAL independence from the suzerainty of Great Britain on 15 August 1947, after more than one hundred years of political struggle. After her independence, India chose to follow the political philosophy of secular democratic socialism as a federation of a number of States and Union Territories. The Constitution was adopted in 1950, wherein the powers of the Central and State Governments were delineated and certain basic fundamental rights were guaranteed to every citizen of the country The States were formed on the basis of language spoken in the area, and as of now there are 25 States and 7 Union Territories.

Independent India initiated the process of planned development in 1951 with the launching of the first five year plan in order to raise the living standards of its people and to open out to them new opportunities for a richer and more varied life. The country is committed to some basic goals, namely, modernization, growth with social justice and self-reliance, and the path chosen to realize these objectives is one of democratic planning Starting from 1951, six five year plans and three years of annual planning have been completed and from April 1985 the seventh five-year plan is ... notable ... is the co... which hav... However, for the ... it was imperative that the public sector should take the initiative in a number of vital areas such as transport, communication, power generation, education, social welfare, etc. The various basic social and economic institutions in India, such as the caste system and the Zamindari system (land ownership system) are a legacy of the past, some for over thousand years, and in order to achieve the goals of economic and social development for the country it was necessary that many of the elements of such institutions be transformed and this change has to be brought about not by force or compulsion but through democratic planning, which emphasises individual freedom and initiative, nor allowing coercion of any type ...

The constraints imposed by this political philosophy, chosen by India for its development, and the complexities arising out of the heterogeneity and diversity of the population in the country, pose a big

challenge to the process of development in India, especially in the field of social change. For example, while a country like China with one party communist rule can impose on its people a stringent family size norm of one child per couple, and achieve a considerable degree of success in realizing this goal within a short span of ten years, India could not achieve the moderate fertility goals postulated in any of its six Five-Year Plans The limitations imposed by the political philosophy within which the various economic and social developmental programmes have to operate, are to be kept in mind when evaluating programmes such as family planning or public health in India and comparing the various achievements in India with other countries

"Lack of success in the family planning front has been a major concern and topic of discussion among programme administrators, planners and demographers in recent years."

Tardy success of population planning

As of first March 1989, India's population has been estimated at 811.25 million It is the second most populous country in the world next to only China whose population is currently estimated at 1100 million. The population of the country is still growing (as of 1988) at 2.0 per cent per year, and if this growth rate persists, it can be expected to double itself in 35 years, i e , to an astounding figure of 1622 million by the year 2024 and by this time it would have overtaken the population of China and would have the dubious distinction of becoming the most populous country in the world The birth and death rates for 1987 have been estimated to be around 31 and 11 per thousand population per year, respectively, compared to the rates of 19 and 7 estimated for China for 1985 Though India can take legitimate pride in the fact that it is the first country in the world to launch an official programme of family planning as early as 1951, and has increased its financial and personnel inputs into the programme from plan to plan over the past 38 years, the birth rate seems to have declined very slowly, hardly by 9 points over four decades The investment in the family planning programme from 1951 upto 1987 is estimated to be around Rs. 3500 crores. The current pace of annual expenditure on the programme is estimated at Rs. 600 crores per year or Rs. 40 per eligible couple per year. During the decade 1976 to 1985, the birth rate hovered around 33 per thousand population per year, inspite of the fact that in the same period there has been substantial increase in the investments in the programme. Lack of success in the family planning front has been a major concern and topic of discussion among programme administrators, planners and demographers in recent years. Many countries which embarked on national family planning programmes much later, in the late 1960s or early 1970s, such as China, Thailand, Korea, Indonesia and the Philippines, seem to have achieved far greater success in terms of fertility decline. This phenomenon calls for a detailed analysis of the programme with a view to drawing lessons for future corrective action

Reasons underlying the failure

The percentage of couples, with wife in the reproductive age span 15-44, effectively protected by a modern method of contraception has substantially increased over the five year plans, from 10 4 in 1970-71 to 37 5 in 1986-87. However most of this protection has been achieved by sterilizations, vasectomy until 1976-77 and tubectomy thereafter In 1986-87 out of 38 per cent of couples protected, 28 per cent (74 per cent of the total number protected) was by sterilization Under such a context the age of the mothers and their parity at the time of sterilization play a crucial role in determining the fertility impact of family planning programme The younger the age and lower the parity at the time of sterilization, the greater would be the impact on fertility Unfortunately the available data reveal that neither the average age nor the parity of women at the time of sterilization have declined over time. For e g the mean age of tubectomy acceptors in 1973-74 was 31.4 and declined only to 30.3 year by 1985-86. The average number of living children for tubectomy acceptors did not record any change at all at 3 5 children between 1977-78 and 1985-86 Among all the couples protected by contraception in 1985-86, it is estimated that while among women in older ages 30-44 about 60 per cent were protected, among younger married women in the age 15-29, it was only 20 per cent Thus, the protection offered by the family planning programme has been largely among the older women of higher parities because of the undue emphasis placed by the programme on sterilization

"Thus, the protection offered by the family planning programme has been largely among the older women of higher parities because of the undue emphasis placed by the programme on sterilization since the very beginning. It is like locking the stable after the horses have bolted away."

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Further, a number of studies within India have revealed that the marital fertility rate among young married women below age 30, who have not been using contraception, has been rising steadily during the past three decades in a number of states This rise in natural fertility among younger women has been associated with three major factors, viz , firstly improved biological fecundity of couples because of better nutrition and health, secondly relaxation of traditional cultural checks on fertility that have prevailed earlier, such as through sexual abstinence by couples on a number of days in a month because of religious and social reasons and

dly, because of reduction in the duration of breast feeding of infants by mothers due to assimilation of urban values that promote bottle feeding. All these changes are necessary consequences of early stages of modernization and every country with a strong cultural heritage goes through it However, this early phase of modernization, when natural fertility tends to rise, has to be passed over quickly wherein widespread use of modern methods of contraception do quickly and effectively, replace the traditional checks on fertility. In India there appears to be a lag in this transition because of undue emphasis on sterilization. There is an urgent need of the programme to concentrate on young married couples

"There is an urgent need of the programme to concentrate on young married couples whose potential fertility is higher than their mothers, by propagating safe reversible contraceptive methods, that they could use for spacing purposes."

whose potential fertility is higher than their mothers, by propagating safe reversible contraceptive methods, that they could use for spacing purposes The programme has to reorient itself to meeting the contraceptive needs of younger couples. In this process greater emphasis should be placed on the more fecund among the younger couples, preferably, those who had given birth to a child A birth-based programme integrating maternal and child health care and family planning services is likely to be more acceptable and effective

While all the countries of the world, developed or developing which launched official programmes of family planning since 1960s, started with spacing methods such as condoms, diaphragm, IUDs, oral pills and injectibles and then added on sterilization to the contraceptive armamentaria, India is the only country which started its programme with sterilization and desperately trying now to shift the emphasis to reversible methods

Divergence between economic and social development

Since her independence, there have been substantial improvements in India in the fields of agricultural production, industrial diversification and productivity However, there has been only relatively slow pace of development in the social sectors such as education, primary health care, nutrition and welfare

Though the percapita income of the country has increased substantially since independence, a comparative study of India's performance with eleven other large developing countries with over 50 million population in 1986, (China, Indonesia, Brazil, Bangladesh, Nigeria, Pakistan, Mexico, The Phillipines, Thailand, Turkey, and Egypt), reveals that India continues to have a very low level per capita income at US $ 290 per person (according to world Bank Estimate), and ranks eleventh from the top (or second poorest) among these countries Even in terms of an index such as consumption of fertilizers per hectare of land, in 1984, India ranks eighth among the twelve countries with 50 4 kilograms of nutrient per hectre used compared with 169 2 in China and 94.7 in Indonesia

Similarly, though the trends in industrial production in India since independence have been more impressive, a comparative study of the developments in industrial sector in the twelve large developing countries between 1965 and 1985 reveals that in terms of three criteria of industrialization viz , urbanization, percentage of the labour force employed in the industrial sector and per capita GDP received in the non-agricultural sector, India ranked between eighth and eleventh from the top among the twelve countries in 1985, and the ranking has practically remained the same during the period 1965-1985 In spite of its significant improvment, India has not improved her relative position among the large developing countries during the period 1965-85, in either urbanization or overall industrial production, though in some selected sectors of industrial production she has improved her rank Though India has done much better industrially compared to agriculture, there has been little improvement in comparison with other developing countries

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"In spite of its significant improvement, India has not improved her relative position among the large developing countries during the period 1965-85, in either urbanization or overall industrial production, though in some selected sectors of industrial production she has improved her rank."

year 1965 Comparing the conditions prevailing in 12 large developing countries in terms of general literacy rates of population 5+. India with only 36 per cent literate in 1981, stands ninth in rank. with Bangladesh, Pakistan and Nigeria below this level

Even as of 1985, only 92 per cent of the children in the age group 6-11 are enrolled in primary schools, compared to 100 or more in China, Brazil, Indonesia, Phillipines, Turkey and Mexico Indonesia and Nigeria which had lower primary school enrolment ratio, than India in 1950 have progressed to levels better than India in 1985 Only the three countries of

.the Islamic faith, (Bangladesh, Pakistan and Egypt), have a lower primary school enrolment rate than India. The same comparative picture emerges more sharply when we consider the primary school enrolment for girls separately, with the enrolment of girls in India at 76 per cent in 1985 with only Bangladesh and Pakistan below this level. The need for placing increased and urgent emphasis on primary school education for girls in India can hardly be over emphasized.

With regard to the overall literacy levels of the population, India had a literacy rate of 41 per cent among those aged 15+ in 1981 and ranks eighth among the twelve countries. The literacy rate for females aged 15+ (25.7 per cent) is about half that of males (54.8 per cent). The absolute number of illiterates over 5+ in India increased by more than 130 million during the period 1951-81, rising from 224 million to 365, which is a great stigma on the country.

As a result of the various public health and medical care programmes, undertaken since independence, rather than due to any significant improvements in the social and economic conditions of the people, the death rates in the population has declined sharply during the period 1945-70 and more slowly thereafter. The crude death rate for the decade 1971-81 is estimated at an average of 15.0 per thousand population per year compared to 27.4 during the decade 1941-51. The pace of decline in the death rate seems to have slowed down thereafter, and was hovering around a value of 15 for the period 1973-78. Since 1978 there has again been a steady decline though at a slower pace, and in 1986 the death rate is estimated 11.1 per thousand population per year.

The infant mortality rate or the deaths of children below one year of age related to 1000 births, is considered to be a very sensitive index reflecting not only the mortality levels in the population, but also of the social and economic conditions of the people which get reflected in the care and nurture of the mothers and infants in the population. The infant mortality rate, was estimated by the census actuaries to be the highest for the decade 1911-21, at 291 infant deaths per thousand births per year, and it has systematically come down over time to a level of 129 for the decade 1961-71 (averaged at 1966), and since 1966 there appears to have been a plateauing of the infant mortality rate around this level. Only since 1978 there appears to be declining trend in the infant mortality levels and the rate is estimated at 96 per thousand births for the year 1986.

The 1986 levels of expectation of life is estimated at 57 years for the country, and is higher than what one could expect based on a regression analysis for the country for the low level of per capita income and of literacy rates prevailing in the country, and that can be estimated on the basis of contemporary experience of developing countries. Similarly the total fertility rate (TFR) of 4.2 estimated for the country in 1986, is lower than what can be expected for a population of India's per capita income and literacy levels based on contemporary experience and regression analysis.

Given the overall economic and social context, in terms of low per capita income (US $ 290) and low literacy level (only 26 per cent females aged 15 above literate in 1981), India's mortality and fertility levels could have been higher than what they were in 1980s. There has been a temporary delinking of developmental trends, especially in terms of per capita income and literacy levels, and demographic changes in recent years because of the impact of the vertical, goal oriented programmes of public health and family planning implemented in the country. Such delinked independent reductions in the fertility and mortality levels cannot be expected to continue in a population, majority of which continues to be malnourished, impoverished and uneducated. It is feared that a rise in mortality, because of operation of Malthusian checks, and a rise in fertility, because of sentimental or religious objections to family planning could occur retrogressing the declining trends in mortality and fertility observed since the 'Seventies. It can be hypothesised that without rapid improvements in social welfare especially in the literacy and educational levels of the population atleast upto secondary levels, and programmes for equitable distribution of income that would help raise the nutritional levels of the large mass of population below the poverty line, there will be decreasing returns to scale of direct investments in the public health and family palnning programmes and the pace of decline in fertility and mortality levels will slow down, if not reversed.

Conclusion

As discussed above, the lack of success in the family planning programme in India are attributable to a number of factors, which include political constraints within which the programme is implemented, faulty programme strategy that has placed undue, if not sole, emphasis on sterilization as the method of contraception, dependence on medical personnel and cash incentives for motivation and lack of rapid progress in the eradication of female illiteracy. Slow economic development at the aggregate level need not be a hurdle in the rapid spread of family planning practice (as demonstrated from the experiences of Kerala State), if certain selective programmes such as female literacy improvement programme, provision of primary health care and minimum needs to all the people are implemented with political commitment adequate deployment of personnel and financial resources. There is a need to concentrate on the MCH and family planning services to women who have just delivered a child, especially the first child, who are likely to be more fecund than on all women in the reproductive ages recruited at random only for sterilization. Birth based family planning programmes are likely to be more effective and efficient in their fertility impact. □□□

Beyond demography- perspectives of population policy

Vasant P. Pethe

Is controling population just a number game? Can we reduce the rate of the growth on population by just fixing targets and following the models that are alien to our social and cultural climate? These are some of the important questions that the author Prof. Pethe, a reputed social thinker, has raised in the following piece. His thesis is that we should develop our own concepts and formulate plans of development and social transformation and should not run after the western models. To support his stand he quotes Prof. Galbraith who says: "The central error in our view of economic development consists of believing that the advanced countries, socialist or capitalist, can serve as a model for less developed countries." Prof Peth[illegible] craze of consumerism which is being [illegible] affluent classes in our country. He adv[illegible] which is more realistic in view of condition[illegible] is not in favour of bringing any coerciv[illegible] family planning targets before achieving th[illegible] According to him it would be like trying to[illegible] making the foundation strong.

THE CENTRAL THESIS OF THIS article may be briefly stated as follows: The problem of population (coupled with poverty) must be regarded, not as an isolated problem, but as an integral aspect of the total socio-economic development We must therefore go 'Beyond Demography' so as to search for a truly effective population control strategy. In other words, we must view the population problem with trans-disciplinary perspectives. One of the most fundamental difficulties in the interdisciplinary exploration of India's population problem relates to the continued application of Western paradigms (or models) of population and development. The difficulty arises because these paradigms are very narrow and restrictive. Consequently, they give undue importance to reduction in fertility as a pre condition to economic growth This has led to almost identifying the population problem with mere numbers and population policy with no more than family planning and sterlization (and of late child and maternal health care) This has also led to target-setting syndrome-the 'targetitis'! The equation between population and development has not been a happy one so far For this equation to set right, we must go beyond demography, discard Western models and evolve our own mdels- the models of the soil, if I may call them,-consistent with our own pluralistic socio-cultural reality

Complexity of Problems

Demography, as a specialist discipline, developed relatively rapidly since the second World War However, its interlinks with other related disciplines have not been as yet worked out in depth. Nobal Laureate Alexis Carrel aptly remarked : 'The science of man is the most difficult of all sciences. Indeed, it is becoming more and more difficult with the

complexity of life. The world today is not so simple as it used to be a couple of centuries ago, Science and technology have changed it in a manner, undreamt of before, They have changed, in a radical way, the equations between man and nature, man and modes of production, man and ecology, man and social groups, man and international relations, and so on Against this backdrop, it is well appreciated that the complexity of the problems created by the present-day high-tech industrial civilization needs expertise in specific areas of knowledge. However, it is not so well appreciated, if at all, that this complexity also demands a broad sweep of vision and a synthesis of

"The discipline-specific approach of the classical academic world to the understanding of the social phenomena has failed to deliver the goods in solving problems facing man and society."

knowledge in a trans-disciplinary perspective Interdisciplinary approach to the study of economic and socio-cultural problems is the imperative need of our times The discipline-specific approach of the classical academic world to the understanding of the social pheuomena has failed to deliver the goods in solving problems facing man and society

In our times of specialization, every discipline is supposed to be looked after by the experts in that area In the same vein, the study of popultion is regarded as the prerogative of the group of specialists called Demographers This is unfortunate. This is perhaps why the population problem became the numbers game and population policy got entangled with family planning and sterilization However, if we want to conceptualize the population problem in its multi-dimensional context, we must perceive this problem as one beyond the confines of Demography Nay even beyond Social Sciences In fact, we must draw upon the entire universe of knowledge, encompassing mental and moral sciences, quantitative sciences, medical sciences and indeed some of the natural sciences which concern the biological aspects of man While discussing measures to control population, Bernard Berelson (1969) emphasized the need to go 'beyond family planning' Now is the time to go, not merely 'beyond family planning', but even 'beyond Demography' to see the true nature of the population problem

Western conceptual frames

Once we agree that poulation studies are multidisciplinary, then the question of using the right kind of available knowledge assumes fundamental importance Right knowledge for perception of a problem and for articulation of policy design is that which is relevant and holistic Unfortunately, we in India, as in other Less Developed Countries (LDCs), have been using knowledge concerning population and development which is entirely irrelevant to Indian conditions and which fails to capture the pluralistic nature of our society The knowledge we have been using concerns the Western paradigms (Conceptual frames) of population and development It is ironical that a celebrated Western thinker should caution us about the futility of using Western models Prof. Galbraith, eminent Economist and former U S Ambassador to India, is reported to have recently observed 'The central error inour view of economic development consists of believing that the advanced countries, socialist or capitalist, can serve as a model for the LDCs.'

Let us consider the Population and Economic Development interaction model Alien paradigms concerning population and development, especially borrowed from the Anglo-Saxon and American culture, are looked upon by us as models which should guide the destiny of this country Despite modelling sophistications in the successive Five Year Plans, the Harrod-Domar Model and the Coale-Hoover Model still continue, basically speaking, to be at the foundation of our approach to economic *planning and population policy* respectively The Coale-Hoover model showed that fertility reduction would generate more savings. The Harrod-Domar Model showed that higher savings and investment with given capital-output ratio would lead to higher gowth of Gross National Product (GNP), Thus, the links in the interaction chain are lower fertility, more savings, more investment and more economic growth Family planning for lowering fertility therefore, assumes the uniquely key role in economic growth

Evolving our own models

The result of the Western conceptual frame is all there for us to see A highly capitalistic economic structure with all its evils is now firmly entrenched

"The central error in our view of economic development consists of believing that the advanced countries, socialist or capitalist, can serve as a model for the LDCs."

What is wrong with the capitalistic path to policies concerning population and development? The model of capitalism for tackling the problems of poverty and population makes a great fetish of two aspects (1) growth in Gross National Product (GNP) on the development front, and (2) Family Planning (FP) on the population front Our experience during the last 38 years or so indicates that our obsession with the GNp and FP, instead of solving our problems have landed us deeper and deeper into the problems of pauperisation, inequalities, bureaucratization of family planning movement, urban chaos and deterioration in the quality of life all around What the

sses need is (1) not development *perse* but the
ial transformation which would make a decisive
inge in the quality of their individual lives and of
blic life, and (2) not small family *perse*, but the
io-economic conditions which would make small
nily optimal for them At the individual level, social
nsformation involves, among other things, a faster
vement in the direction of total eradication of
teracy, adequate education, threshold reduction
infant and child mortality, right to employment,
equate income and social security against the
ious risks of life, etc. At the societal level, it invol-
clean administration, greater egalitarianism in
perty-relations, communal harmony and value-
ed political and social life. To attain true social
nsformation in favour of the poor, it has become
perative to reconsider the whole question of the
nceptual frame for population management and
nomic progress, and to evolve our own models.
re, I may just pose a question: why have our policy-
kers not given a fair trial to the Gandhian model,
ich has been highly admired by thinkers like
ert Einstein, Martin Luther King, Gunnar Myrdal,
kson, Schumacher and many others. Our new
vernment should *give urgent attention to the path*
ich we wish to follow for our socio-economic
ogress We need some kind of peaceful revolution
our thinking about our problems in our own way,
the kind of Gorbachev's 'perestroika' which has
ept the entire Eastern Europe

The craze of consumerism

Gandhian approach to life and living seems to be
re healthy in the context of the rich traditions of
lian culture and at the same time of the still
evalent phenomenon of universal poverty amongst
masses The philosophy of simple living is usually
iculed by the elite and the over-zealous advocates
modernity However, advocacy of simple living is
re realistic for India of today than the crazy
nsumerism of the West which is being aped by the
erging affluent classes in India *To put Western*
nsumerism in terms of the population numbers,
e can say that the population of U S A. is *not 220*
llion but 22,000 million ! This figure is calculated by
American scholar Jeremy Rifkin in his well-known
ok: Entropy. His arithmetic is simple. He argues
at *since* an American citizen consumes on an
erage energy resources 100 times the world average,
population has to be reckoned as 100 times of
at the U S Census shows Thus, U S. population is
times the Indian population ! Consumerism has
h disastrous implication for population numbers !

My criticism against the Western approach should
be misunderstood. Criticism is against Western
radigms, not against Western people and their
ture All cultures can co-exist and they together
enrich the kaleidoscopic panorama of global
man culture. Similarly, my analysis so far may
the impression that I do not recognize
pulation growth as a serious problem and that I am
against family planning. Far from it. My only point is
that we should evolve a realistic and a relevant model
which would lead to an effective family planning
drive and make it a people's movement in the true
sense of the word

I may now make at least two important policy
suggestions for the planners and policy-makers
under the new Government First, since social
transformation holds the key to progress, top-priority
needs to be accorded to the fulfilment of economic
and social targets In particular, these should include
targets concerning (1) literacy and education, (2) child
survival, (3) employment generation, (4) adequate
income, and (5) old age social security. (The recent
provision of pension to all senior citizens above age
60 in U.P. is most welcome and is worthy of emulation
by all States). These measures would not merely
eradicate poverty and give dignity to people as
human beings, but would also lead to the decline in
the population-growth rate. To bring coercive
pressure for fulfilling family planning and sterilization
targets, *before* fulfilling socio-economic targets is just
like putting the cart before the horse, or trying to
build the top without its foundations

Secondly, as emphasized earlier, we must stop
apeing the West and evolve our own models of
population and development In this connection, I
have been pleading for the setting up of a National
Commission
hasten to
study the
go beyond
to lead to a
population
resource
ecological
level of exp
perspective involving Social Sciences ...
Science and Technology Bio-medical Sciences, Life
Sciences, Social Philosophy and the related areas of
knowledge Recent new political change merits fresh
perspectives The Commission on Population and the
related Concerns would help it

In conclusion, I may say, we are fast approaching
the 21st Century There is lot of romanticism rather
than awareness about the probable reality at the turn
of the century We talk about Health for All, reaching
NRR-1, and so on, around the year 2000 For this to
materialize, the policy-makers must realize that we
must discard old ways and find out our path to
progress If perception of our problems goes wrong,
policy is bound to go astray Frustration then would
be ahead of us Hence the only hope even at this stage
of our precarious social situation lies in the correct
perception of our problems of population and
development and articulation of effective policies
coupled with hard work This alone can lead us to
that dreamy Golden Age of the 21st Century, for
which all of us cherish great hopes

Employment position of educated women

Dr. (Mrs.) Usha Kundu

Unemployment is a chronic problem in our country. But the problem of the unemployment of educated women is acute. Although female education is not so widespread, particularly in our rural areas, yet the number of educated women is steadily rising. It is a matter of common concern that female work participation rate is slow in our country. The author, Dr. Kundu has attempted to prove through reliable statistics that with the passage of years the percentage of female work participation is on the decline. She has given several convincing reasons for this including the introduction of night shifts in our industrial units. The author maintains that there is a discrimination against women in all walks of life despite the constitutional guarantees. While the position in organised industrial sectors is not bad, the unorganised sector does not present a very happy picture where women are subjected even to wage discrimination. Besides suggesting a number of measures to improve the existing situtation, the author tells that there is need for change of attitude on the part of male member of our society towards the females. She quotes Bapu who says the education of a man is the education of an individual, the education of a woman is the education of an entire family".

WOMEN'S EDUCATION AND STATUS have been viewed as the key input to National Development in India in the present perspective. Education both formal and informal is the process of increasing the knowledge, the skills and the capacities of the people in a society. In other words, imparting of education leads to the process of human resource development

Alfred Marshall has emphasized the importance of education as 'National Investment' and in his view "the most valuable of all capital is that invested in human being". The broad definition of human resource development would include programmes of education, health, nutrition, housing, social security and all other facets of socio-economic development

policies that a country may have But human resource development in India is understood to be consisting of the following three elements only –

- (i) forecasting the demand for and supply of human resource;
- (ii) integrating human resource planning with educational and economic planning, and
- (iii) utilizing or employing human resource of the country

The present study is an attempt to find out how far the third objective of providing employment to the skilled and educated women labour is met by the present day planning process in India It may be pointed out here that the paucity of detailed and accurate statistical data and research material with regard to the women's employment according to their educational status is a great handicap in making the study cent percent valid and authentic However, whatever inadequate statistical data is available, efforts have been made to make the best use of that by compiling and analysing it scientifically and methodically in order to find out the employment pattern of education women labour force

Objectives of the study

The main objective of the present study is to find out the economic status of women (who form almost half of the total human resource stock) according to their educational qualifications In order to do that it becomes essential to find out

1. female population and its variation over various decades and their proportion to total population,
2. Literacy rate among female population & their distribution according to age,
3. work-participation rate according to educational status,
4. rural-urban distribution of educated women workers,
5. extent of unemployment among educated women according to Live Register records

Methodology

1. Matriculates and above are considered as educated,
2. the survey comprises of all educated women (matriculates & above) in the age groups of 15-35 residing both in the rural and urban areas,
3. the study is based predominantly on the secondary source i e , reports of the Government Agencies, Planning Commission and various Expert Committees & NSS data etc

Growth rate and sex ratio

Statistical evidence shows that except for the decade 1911 to 1921, the population of both males and females have shown a continuously increasing trend from 1901 to 1981 But it is disturbing to note that the sex-ratio (i e females for 1000 males) has declined in each decade from the high of 972 in 1901 to the low of 933 in 1981, the lowest 939 being recorded in 1971 The causes are our socio-economic system which considers girl a liability and is discriminated right from the cradle to the crematorium There are instances when female children are sacrificed and offered to appease the Gods, so that the next off-spring may be a male Among some of the tribes female babies are poisoned to death as soon as they are born or they are denied proper health care-like immunisation against various diseases at the proper time and proper nourishment Among the more sophisticated and educated people, the pregnancy test for sex determination and added to that the legalisation of abortion has made it easier to get rid of the unwanted female foetus

Table I

Total Population, Sex ratio percentage decennial variations of population from 1901 to 1981

Year	Persons (in mills)	Female population (in mills)	Percentage of female Population to total population	Sex ratio females per 1000 males	Decennial variation percent
1	2	3	4	5	6
1901	238 39	[illegible]			
1911	[illegible]				
1921	[illegible]				
1931	[illegible]				
1941	[illegible]				
1951	[illegible]				
1961	[illegible]				
1971	[illegible]				
1981	[illegible]				

Table I (a)

Infant Mortality Rate by Sex and Residence (Per Thousand)

	Rural		Urban		All India	
	Male	Female	Male	Female	Male	Female
1972	141	161	85	85	132	148
1978	130	142	61	71	120	131

Literacy rate & work-participation rate

Inspite of the constitutional guarantees for equality of economic social, political and educational facilities women have lagged behind in almost all walks of life Their literacy rate is only 24 82 per cent against 46 89 per cent among men Their work participation rate is miserably low 13 99 per cent as against 57 62 per cent among males The following tables (Table II (a) & II (b)) show the literacy rate and work participation rates by sex and rural-urban residence in the two time periods i.e . 1971 and 1981.

Literacy Rate for all ages and for ages 15 and above by sex and rural-urban residence, 1971 and 1981

Table II (a)

Age Group	Person Male Female	1971 Total	1971 Rural	1971 Urban	1981 Total	1981 Rural	1981 Urban
	2	3	4	5	6	7	8
All ages	Persons	29 49	23 69	52 37	36 23	29 65	57 40
	Males	39 52	33 76	61 24	46 89	40 79	65 83
	Females	18 70	13 08	42 05	24 82	17 96	47 82
15+	Persons	34 04	26 98	60 28	40 76	32.76	65·13
	Males	47 69	40 51	72 42	54 84	47 27	76 36
	Females	19 32	12 88	45 42	25 68	17 57	51 88
35+	Persons	25 16	19 40	49 33	30·18	23 17	54 25
	Males	37 97	31 23	64 47	44 61	37 96	69 42
	Females	10 75	6 47	30 18	14 44	8 62	35 91

According to the committee set up on the eve of International Wom?n's Decade 1975-85, the Female Work participation Rate (FWPR) has been falling in India since 1901. This is found true even after leaving room for definitional changes in the various population censuses. Table III indicates the falling work participation rate among women.

Table II (b)

Work Participation Rates (per cent) for main workers 1971 & 1981

Age Groups	1971 Males	1971 Females	1981 Males	1981 Females
All ages	52 61	12 06	51 62	13 99
0-14	6 65	2 63	5 46	2 95
15-19	55 32	15.78	51 15	18 48
20-24	81 43	18 12	76 91	20 32
25-29	94.27	20 1	91 08	22 52
30-39	97 12	21 70	96 22	25 31
40-49	97 08	22 63	96 81	25 97
50-59	54.03	19 64	92 43	21 57

Table III

Percentage of economically active population (1901-1981)

Years	Percentage of the economically active among Males	Females
1901	61 11	31 70
1911	61 90	33 73
1921	60 52	32 67
1931	58 27	27 63
1941	—	—
1951	54.05	23 30
1961	57 10	27 96
1971	·52 55	12 73
1981	51 62	13 99

The reasons for falling FWPR could be various decline of traditional industries, urbanisat industrialisation, mechanisation of produc processes etc. Also with the coming of night shi many factories women have been displaced

FWPR = Female work Participation Rate

Women in employ...

The analysis of the available data shows women with matriculation as their h qualification have the lowest participation i e , 11 25 per cent as against 46 per cent am men. Except for teaching and medicine the w participation rate among female population is m lower than their male counterparts with the s educational level According to the census repo 1981, the absorption rate of women with techn education (engineering and technology) was (45 67 per-cent as against 85 43 per cent among ma The employment exchange figures show that aln 1/3 rd of the total unemployed (33.82 lakh ou 111 55 lakh for the year 1983) were women ! shows the colossal wastage of our human capita which a heavy investment both private &. soci made According to conservative estimates the so investment made on training on engineer graduate is 1 lakh, added to that the priv investment which includes outlays on fees, bo food, as well as the indirect costs of income forego

A certain percentage of educated women ma voluntarily unemployed as the demand on t household front may be greater and irresistib Sometimes women keep themselves out of the lab market because of their preoccupation with bearing and rearing of children generally in their twenties or early thirtees. Some have to opt out jobs because their husbands are posted to dist areas and distant places, i.e , in Defence Servi Indian Administrative Services, Indian Forei Service etc., and it may be difficult for them to find new job every time and every where they go.

Comparision of work-force participation rates between males and females for the year 1981 according to the educational level

Educational level	Males		Females	
	Rural	*urban*	*Rural*	*Urban*
Matriculates	55 80	46 00	16 80	11 25
Higher Secondary/Inter	50.61	38 16	12 60	9 65
Non-technical	58 00	38 00	54 90	43 25
Technical Diploma	62 21	66 66	71 73	62 55
Graduates	72 29	56 00	33 67	21 25
Post-graduates	—	57.14		33 24
Technical				
Engineering Technology	—	85 43	—	45 67
Medicine	-	62 86	—	73.00
Agriculture	—	67.50	—	43.16
Dairying				
Veterinary	—	81 01	—	43 30
Teaching	—	44 10	—	58 00
Others	—	57 63	—	47 00

Conclusion and suggestions

Despite all the developmental measures and constitutional guarantees, women have lagged behind men in almost all walks of life They are discriminated right from their cradle and this discrimination continues even in the job market. Their worth competance is not recognised in the job market and the employers generally feel that making any kind of investment on a female employee is a wastage Women are subjected to both job discrimination as well as wage discrimination particularly in the un-organised sector And the role of women is confined to certain sectors of the economy or to certain occupations only Not only is the work-participation rate low but the literacy rate also is miserably low Therefore, the following steps are suggested in the direction of improving the economic status of women. -

1. Not only have additional employment opportunities to be generated by using the suitable structure of investment and production,-but distributive justice needs to be done
2. Women have to work under great constraints They have to play a dual productive economic role as unpaid labourers at home and as paid workers in the fields, factories or offices Moreover, they have to spend between 4 to 5 years in the child bearing & child rearing process And this function of every married women is most important as by proper child care and child rearing they are helping in the development of human capital Therefore, it is suggested that the maximum age limit to enter the Government services should be higher at least by three years in case of female workers as against male workers. Moreover, their seniority should be retained in case there is a service break for bringing up their children Health care is today considered an essential aspect of human resource development.
3. Better infra-structural facilities need to be provided for encouraging self-employment among the educated unemployed women. Special entrepreneurship courses should be run for women unemployeds.
4. There is need for proper man-power planning A significant proportion of technically and professionally trained women workers are unemployed Therefore, efforts have to be made to bring the development of different skills in line with social needs.
5. Fuller utilisation of plant capacities both in the public as well as private sector will help in generating lakhs of jobs in the organised sector without further investment on fixed capital. Larger variety of vocational courses particularly for girls who do not intend to continue their general education beyond elementary or secondary stage, should be introduced
6. Educated women should be encouraged to form co-operative societies to be controlled & run exclusively by them for which they should get the necessary help and guidance from the cooperative sector of the State Governments
7. There is need for the change of attitude on the part of male members of our society Men and women both must share the burden of house keeping equally This will help our educated [illegible] fema[illegible] buil[illegible] scal[illegible] whi[illegible] prob[illegible] will [illegible] adequ[illegible] investmen[illegible] may be pointed out here that in case of the industrialised countries the womens share in the labour force ranges between 30 to 48 per cent being the highest in the planned economics Thus, social outlook has to be radically changed and some institutional, structural and attitudinal barriers smashed to incorporate new value judgements into the development policies Women have to be given due participation in the developmental activities of the country.

Over and above all these measures, more and special educational facilities have to be provided for the women population There seems to be a direct corelation between education and employment Moreover, women's education will have an indirect advantage of helping social transformation As Gandhi Ji has said, "the education of a man is the education of an individual, the education of a woman is the education of a family "□ □ □

A Report on International Population Conference

S.M. Shah

Following is a report on the International Population Conference held in New Delhi from September 20 to 27, 1989. The weeklong conference discussed a plethora of problems concerning population growth all over the globe. Dr.S.M. Shah, former Adviser, Planning Commission, who attended this conference, has prepared this report exclusively for YOJANA.

ADVANCING THE SCIENCE OF demography is the motto of International Union for the Scientific Study of Population. As a democratic forum of those engaged in population research, the Conference meets once in four years to debate various issues relating to population, undoubtedly world's top concern in a crowded earth.

India had earlier hosted the General Conference of the Union (IUSSP) in 1951, the first year of India's First Five Year Plan which was addressed by Pandit Jawaharlal Nehru. Referring to India's population then, Nehru seems to have remarked, 'I have 480 million problems'. He had as Prime Minister onerous responsibility to lead India to the path of progress. It was India which was the first country in the world to have launched the Family Planning Programme. India's concern over the population problem is obvious.

Thirtyeight years later, the International Population Conference met in India again for a week from 20-27 September, 1989.

Population as resource

Population is both the subject and object of the development process. In 1954 Nehru had remarked, "Our wealth is our people". We only need to arouse them. There is a ring of Chinese fervour, a country that had impressed him as also the Soviet Russia following tw... 400 million hands to bu... all the schoo... grow all the...

Populatio... been recognis... model for econom...

The former Prime Minister Mr. Rajiv Gandhi who addressed the 21st General Conference in Vigyan Bhawan, New Delhi called upon the delegates coming from different countries to have a 'holistic perception of the development process of which population policy constituted but one component, albeit a significant component'.

He called upon policy makers to adapt policies and programmes to the specific characteristics of different zones. Citing figures of variations in population growth rates, birth rates, age-specific fertility rates for different states in India, he clarified that there was no homogeneity in the parameters of population growth in India as a whole. He called for research on differential impact of the family plannning programme on different regional, socio-economic and ethnic groups. What is true for India is also true for different countries in the world.

Addressing the delegates belonging to different countries pursuing different ideologies, he

emphasised the point that all of us belonged to one humanity; "we inhabit one globe" This has been the endeavour of the IUSSP in holding international conferences.

Significantly he remarked, "so large is India's share in world population, and so significant is our contribution to world population growth that it would not be too much of an exaggeration to say that a solution to India's population problem would, in large measure, amount to a solution of the world's population problem" The theme was taken up by the participants later and oftrepeated during the discussions.

[illegible]

Professor Ashish Bose, Chairman of the International Organisation Committee for IUSSP, while welcoming the Conference delegates, called for a shift from population to people, a number game of targets and achievements to a more realistic and humane approach in implementing the population programme. "If demographers become prisioners of decimal points and family planning administrators try to doctor our family planning performance statistics, we will miss the heart-beat of the people and alienate ourselves from reality" He only reflected the tenor of discussion that followed in various sessions of the Conference later

In evaluating such programmes, not only demographic and statistical skills are called for, but more importantly, a sound grasp of the social environment in which such programmes are implemented. The curtain was raised.

[illegible]

The Conference was a big draw. Not only the main auditorium of Vigyan Bhawan but also its committee rooms, foyer etc , were 'occupied' for a week by Conference delegates and Conference related programmes.

More than 1500 delegates from different countries registered themselves. Special arrangements were made at Hotel Meridian, Ashok and Vigyan Bhawan to cope with a large number of registrants. Special counters were opened.

[illegible]

Among the participants who attended the Conference, mention may be made of Ansley J. Coale (U.S.A.) well known in this part of the world for his very famous work connected with population of India. Mention may also be made of J.C. Caldwell working from Australian National University, Canberra (Australia), William Brass, (U.K.), Massimo Livi Bacci (Italy), Bruno Remiche (Belgium), Jean Claud Chasteland (France/U.N.), Nafis Sadik (Pakistan/UNFPA) and from India, Chidambara Chandrasekaran, Asok Mitra and Ashish Bose. The Government of India gave its wholehearted support

Countries participati[illegible]

Participants included those from Denmark, Indonesia, Morocco, Nigeria, Pakistan, Kenya, Australia, Bangladesh, Ethiopia, U.S A., Hungary Mauritania, China Mozambique, Chile, Ireland Benin, Japan, Cuba, Ghana, Yugoslavia, Argentina, Korea, Poland, Italy, Peru, Sweden, France, Canada, U.K. Mexico, Singapore, Algeria, Thailand, Malawi, Philippines, Lebanon, Netherlands, Sri Lanka, Israel, Romania, Iran, U.S.S.R., Vietnam, Finland, Tunisia, Tanzania New Zealand, Sierra Leone, Nepal, Malaysia, Angola, Bulgaria, Congo, Jamaica, Zaire, Zimbabwe, Spain, Madagascar, Syria, Brazil, Gambia, Germany (FRG), etc.

The participation in large number from several newly independent countries and the developing world (Africa most significantly) reflected the aspirations and new awakening amongst these peoples on the population problem Undoubtedly, population is a global problem and the very best brains with their varied experiences and hues were put together battling and merging together to see the fight

Kudos must be given to the National Organising Committee and its Secretary M K Premi for the excellent arrangements made and for the vary smooth logistic run Besides looking after the delegates and their needs, the delegates went richer home carrying three printed volumes of International Conference papers (total 1288 pages) and two volumes of contributions made by Indian authors (total 910 pages). The three volumes carried nearly one-hundred invited papers. Similarly, the two Indian volumes contained 78 contributions.

Conference sessi[illegible]

The Conference was divided into one plennary session, 27 formal sessions, 22 informal sessions and 2 round table sessions. Two post conference workshops were also held on:

(a) Computer Software for statistical analysis of demographic data at National Institute of Health and Family Welfare, New Delhi, and
(b) Sociology and Population at Gujarat Institute of Area Planning, Ahmedabad.

Breaking the past rec[illegible]

The New Delhi 1989 Conference registered a number of milestones and broke several past records The first and foremost was the largest number of registration of delegates. There was a sizeable representation of countries like China, Latin America and Africa, not to mention the neighbouring countries like Pakistan and Bangladesh. More than seventy countries throughout the length and breadth of the world sent their demographers to participate in the discussions.

Secondly, for the first time in the history of the International Population Conference, the printing of Conference Volumes embodying the invited papers was done in a host country and not at the HQ of the IUSSP in Liege (Belgium)

Thirdly, it was for the first time in the Conference history that simultaneous interpretation in English and French, the official languages of the Conference, was arranged to follow the deliberations of the informal sessions numbering nearly twenty two

South asian regional conference

The Indian Association for the Study of Population and United Nations Fund for Population Activities (UNFPA) held thoughtfully as a pre-conference activity, the South Asian Regional Conference on Population at the Indian Institute of Foreign Trade (IIFT), New Delhi, from September 16-18, 1989 Delegates from India, Pakistan, Bangladesh, Nepal, Sri Lanka, participated. It was addressed by population experts who have done research on demography in the South Asian Region, for example, Ansley J Coale, William Brass, J C Caldwell, Jing Neng Li, George Stolnitz, A V Zabolotsky, Mohameed Afzal, K H M Gaminiratna, amongst others

The Conference discussed broader issues like (1) Population and Development (2) Fertility and Family Welfare (3) Demographic Models (4) Population, Economy and Employment (5) Urbanisation and (6) Data systems in Demography

The simplistic demographic models came under heavy attack even to the extent of their being misleading the policy makers There was no 1 1 relationship between fertility decline and growth of per capita income Haryana's (India) case was referred to in this repect M K Premi made a strong attack on the models saying that despite growth in per capita income, improvements in life expectancy, enhanced literacy and reduction in infant mortality, fertility in India had not declined Indian demographers have been puzzled to note that inspite of CPR (couple protection rate) going high, the CBR (crude birth rate) was not coming down

One finds no causal relationship between CPR and CBR. Ansley Coale strongly pleaded that age distribution was very vital to the study of both fertility and mortality He based his observations on studies relating to India and Mexico A.V Zabolotsky (USSR) said that population was outpacing economic development. The uneven distribution of nature's resources made solution of population problem rather difficult Ecological factors are becoming compelling problems in population policy G Stolnitz (USA) mentioned particular unfavourable conditions of low income countries viz. unfavourable trade, negative balance of payments, crushing debt burden and rising cost of environment not to mention the problem inflation. William Brass viewed the population problem in relation to technological change and called for more comparative research on population and development.

Social Development

J.C Caldwell put forth his analysis which received favourable acceptance at the International Conference later that followed. He mentioned that population needed to be studied in relation to both economic and social development, emphasing the latter. Presenting his case based on his research done in Sri Lanka, south India, Nigeria etc , he put forth the plea that cultural factors like status of women in society, access to health facilities, traditional medicines, education of women and appropriate infrastructure for the delivery of medical, health and nutrition services were very important. Referring to child survival, K H M Gaminiratna mentioned that both biomedical and demographic factors were important, not just the latter Ashish Bose was more emphatic in recognising the social environment and the societal position of women Jing Neng Li said China had different population policy for cities, for rural areas and for the minorities.

Reflecting dissatisfaction over simplistic demographic models sold to the developing world, a participant called for "experimental research" in data collection More studies on migration-both internal and outside migration-were needed There was concern for un[illegible] on account [illegible] accessibility [illegible] (information [illegible] activities [illegible]

Shaad R[illegible] sponsor, s[illegible] lack of impa[illegible] thus far In dept[illegible] UNFPA and regional funds were available [illegible] workshops, technical exchange etc He promised UNFPA's continued support for population activities in the region

The Conference emphasised the need for developing research and training facilities for young demographers in the region with possible assistance from UNFPA/SAARC

Discussion

It is difficult in this brief report to condense the deliberations of a week-long International Conference that had a total of nearly fifty formal and informal sessions Only the major issues and trend of discussions could be mentioned here

For the purpose of brevity these are discussed under the broad heads of population and development, population policy, fertility studies, problems relating to social structure, social development, child survival, ageing, problems of minorities, mega-cities and rural development

Demographers in the past have been obsessed with the studies relating to fertility analysis and fertility control. As a matter of fact, fertility suppression and family planning had been a major pre-occupation of the demographers' They viewed this as if fertility was a mere demographic problem and not a social problem that concerned society as whole and that which was within a given (different) social structure

Experts worried their heads about population projections - doubling and trebling of maga-cities and the crushing growth of slums and squatter populations They even advocated physical barriers to movement like 'city permits' which even smacked of apartheid They suggested serveral negative solutions Suppress fertility and Marx and Malthus will be happy in their graves Hold population which was outstripping development They offered no workable, effective public choices in population policy

The villain has been the simplistic demographic models It is good to be aware of econometric models, but they work differently under different assumptions The form of infrastructure available in a country and the social structure differ significantly, say, in Middle East, Western and Asian Societies Few have realised that an absence of 'social security' (old age pension, unemployment insurance, free education, free medical facilities etc) is a great deterrant to limiting family size

The advice is we have to look beyond demography' beyond just numbers, and see people that make a society Biomedical and demographic aspects of health are important Easy access and affordability of health care facilities are important in child survival

The Conference felt that both economic and social conditions have a lot of bearing on the demographic situation The complex social structure-the role of women, the societal taboos and norms of behaviour, education of women, literacy, availability of information, and technology, the status of women are all important in population studies

At the same time, the availability of infrastructure for health, education and nutrition is very important Several villages in Africa and Asia are not within easy reach of health and medical facilities This leads to under-utilization of available infrastructure facilities-the primary health centres, MCH 'centres, referral hospital etc Several of them are or remain without doctors and paramedical staff (as they are not available and not attracted to work there) If there are roads, there are no vehicles If there are vehicles, there are no spare parts, not even petrol at times Even the contraceptive use suffers on account of lack of after care

Attention is paid more to the supply side-the delivery of services and much less to the demand side-the felt needs of the people Citing example of Egypt, it was mentioned that the problem was of target selectivity how to reach the poor outside the formal sector How to carry out decentralisation of public services (without political cadres as are in China) Marriage is a regulator of fertility but what of societies where pre-marital sexuality is openly permitted without any taboo ? And how to protect populations against killer diseases ? And what about teen age pregnancies ?

The Conference did discuss economic issues rural development, migration, mega-cities, migratory flows etc , but these issues remained at low key, for there were very few economists proper who were present to make their contributions from the floor

The Conference also discussed other emerging issues like ageing, co-habitations, AIDS, and 'greenhouse' effects etc There was, hence, no dearth of sweep of the subject matter

It was very rewarding for each one of the participant who attended this Conference The Conference has given a lead, new direction to the demographers not to confine themselves to their rooms but come out openly and mingle with populations that constitute a society

Population—a parameter In economic development

By : Prof M.K. Premi

The process of planning the development of the country began soon after independence. The main objective was and still remains to raise the standard of living and to provide opportunities to the masses for a richer and varied life. The seven five-year plans that we have had brought industry, agriculture, education, transport and technology to an admittedly higher level of performance. Yet, the targets of elimination of poverty, illiteracy and unemployment remained beyond reach. The main reason was the accelerating pace of population. which continues to increase with the pasage of years. Prof. Premi of J.N.U. tells that more realistic planning could have been achieved if the population figures were broken down in appropriate age groups. While there is an enormo[illegible] population, the rural work force waiting to b[illegible] jobs, is also constantly on the increase T[illegible] wider expansion in agricultural and ind[illegible] percolation of global technological advan[illegible] countries would come to our rescue.

INDIA BEGAN THE PROCESS OF planned economic and social development nearly four decades ago with the establishment of the Planning Commission and with the objective of "initiating a process of development which was to raise living standards and open out to the people new opportunities for a richer and more varied life" (Planning Commission 1951). In formulating the perspective for the next 25 years at the time of preparing the First Five Year Plan the Planning Commission assumed that (i) population will continue to grow at about 1 25 per cent per annum (which was the rate recorded for the 1941-51 decades), (ii) the capital output ratio will be 3 : 1, and capital formation will be stepped up from the beginning by as much as two-thirds of the additional income each year. It was assumed that per capita income at constant prices would double in twenty-five years.

Besides rise in per capita income, economic development coupled with industrialisation and urbanisation is also expected to achieve (a) development of human capital leading to increased efficiency of lab[illegible] magnitude of unemployment [illegible] a shift in the dependence of population on agriculture to industry and modern tertiary sector (d) reduction of the proportion of population below poverty line and (e) a reduction in infant mortality rate.

In pursuit of universal education

Development of human capital involves provision of educational facilities up to a certain level to all children in specified age group and expansion of technical and vocational education to meet the demand of skilled labour especially in organised industries and modern tertiary sector. Although the Directive Principle of State Policy in the Indian Constitution stated that the state would strive to provide free and compulsory education to all children up to the age of 14 years within a period of 10 years from the date of adoption of the Constitution it has, however not been possible so far for the education system to achieve the above goal despite a net work of 8 6 lakh schools and 34 9 lakh teachers

The National Policy on Education, 1986 has suggested serveral steps like "Operation Blackboard", emphasis on girls' enrolment into the schools, and non-formal education for children who cannot go to school and the then Government at the Centre had declared to achieve the goal of universal education in the 6-11 age group by 1990 and 11-14 age group by 1995. In fixing these targets, the demographic factor has not, however, been considered at all, and there are serious doubts whether the country can achieve universal edûcation in the 6-14 age group even by 1995.

"The special employment programmes like the National Rural Employment Programme, Rural Landless Employment Guarantee Programme, Drought prone Area Programme and recently introduced Jawahar Rozgar Yojana, etc. are hardly likely to liquidate completely the unemployment situation in the country."

Development is but another name for employment opportunities. The First Five Year Plan recognised that a programme of full employment, with assurance of at least the current level of real wages to the newly employed with no reduction in the real wages of those already employed, could get into swing as capital formation in the country goes up At the end of the First Plan, there was an unemployment backlog of 5.3 million persons. In March 1985, the backlog of unemployed in population aged 5+ was estimated at 13 9 million on the basis of concepts and definitions of the 32nd round of the National Sample Survey, but only at 9.2 million persons on the basis of its 38th round (Planning Commission 1985 113). Whatever figures one takes, the unemployment backlog instead of being dissolved through the planning process increased over time. The net addition to the labour force aged 5 and above during the Seventh Plan was estimated at 39.4 million, implying need for creating 48 6 million additional jobs during the current plan if the total unemployment was to be dissolved The special employment programmes like the National Rural Employment Programme, Rural Landless Employment Gaurantee Programme, Drought Prone Area Programme and recently introduced Jawahar Rozgar Yojana, etc , are hardly likely to liquidate completely the unemployment situation in the country.

Jigsaw of job opportunities

Regarding the changes in the economic strucuture of the working force, the Second Five Year Plan stated that the bulk of the new employment opportunities have to be found in mining and in modern industry (large and small scale), in construction and in tertiary occupations. With the best efforts that can be made, some increases in the working force in agriculture might, however, be unavoidable for some years to come but, by 1975-76, the proportion of agricultural labour force to the total should c down from about 70 per cent in 1951 to around 6(cent As is well known, there has not been reduction in the dependence on agriculture up t(1971 census; it was 71 8 per cent in 1921, 69 5 per in 1961 and 69 7 per cent in 1971. The latest fig however, show that there has been a dramatic ch in this constancy The share of male wo dependent on the agricultural sector in rural I has fallen from 83.2 per cent in 1972-73 (NSS Round) to 76 8 per cent in 1983-84 (NSS 38th Ro Alagh 1989: 7). Similarly, the 1981 population ce indicated a fall of 3 2 per cent in the shar agriculture sector largely led to a rise in the sha tertiary sector rather than manufacturing se Thus, the planning process instead of genera greater employment in the manufacturing construction sector led to an increase in the "u informal sector" in the form of petty trade, st hawking, non-mechanised transport. etc.

A significant achievem

"Reduction of inequalities in income and we and a more even distribution of economic power" remained one of the basic objectives of In planning This implied that the pattern of deve ment and the structure of socio-economic relat should be so planned that they result not onl appreciable increases in national income employment, but also in greater equality in inco and wealth Further, the benefits of econo development must increasingly accrue to relatively less privileged classes of society, and tl should be a progressive reduction of the concer tion of income, wealth and economic power about four decades, a variety of instruments ran from direct attacks on poverty and asset inequali

"India is facing a paradoxical situat because of inappropriately planned educat growth. On the one hand there has b explosion of the number of educa unemployed, on the other hand, there l been shortage of specific types of manpow

indirect fiscal measures have been employed pursue these ends.These have led to a rise in' capita consumption, and also a reduction in proportion of population below povery line fro per cent in rural and 41 per cent in urban areas in 1 73 to 51 per cent in rural and 38 per cent in urban a in 1978-79, and to 40 per cent in rural and 28 per c in urban areas in 1983-84 (Planning Commission 1' a, 4). Considering the total size of India's populat this reduction in population below poverty line significant achievement.

High infant mortality

The level of infant mortality rate in a country been regarded as a very good indicator of social a

nomic development as it reflects the availability of health and medical facilities for women and children, nutrition of the mother and child, availability of safe drinking water, as well as the educational level of the child's parents. At the time of independence of the country, one in every five children born could not see his her first birthday. Although the situation has improved considerably over the past forty years since, as of 1987, only one in ten children was dying before attaining the age of 1 year; however, compared to all the developed countries and a large number of developing countries, our infant mortality rate was very high. For example, in Japan it was only 5 per 1,000 live births, 8 in Western Europe, 9 in northern Europe, and below 50 in most developing countries while it was 95 in India in 1987.

"Although the shortfall in the available resources and unexpected rise in prices were partly responsible for the ills of the economy, the shortfalls in the projected populations compared to the actual counts in 1961 and in 1981 have also contributed substantially to the present state of affairs in the country."

Thus, one finds that practically all the above indicators of economic development indicate that the country has not made as much progress as was envisaged or expected. Although there are several factors responsible for the sluggish growth of the Indian Economy and almost no shift of the working force from agriculture to manufacturing and tertiary sectors, like the lack resources, failure to utilize effectively the available source resources, and a much higher capital output ratio than visualised in the First or Second Five Year Plans, but the unprecedented population growth since the beginning of the 1950s has also been a major factor.

Impact of population size and growth

In formulating the First Five Year Plan, as indicated earlier, the Planning Commission had assumed that population will continue to grow at least for the next 25 years at 1 25 per cent per annum, a rate which was recorded during the 1941-51 decade. While formulating the Second Five year Plan, the Commission felt that the above assumption was not appropriate as there were signs of a higher growth rate. The Commission, however, retained the assumption of an annual growth rate of 1 25 per cent during 1951-60 period, but assumed an overall growth rate of 13 3 per cent during 1961-70 period, and a growth rate of 14 per cent for 1971-80.

In making the above assumptions, the Commission did not realise that the health programme in the Five Year Plans such as control of malaria and other communicable diseases, provision of safe water supply, campaign for sanitation and environmental hygiene, and expansion of health services, etc., would considerably reduce the death rate in the country even on a short term basis which would increase the growth rate unless there was simultanous and similar reduction in birth rate through family planning population control programmes. It was also not realised that in an illiterate population such as ours, ridden by tradition and supersitions, a family planning programme based on clinical approach could not succeed very much. Hence, our assumptions about the future growth rates of India's population for the 1950s and the 1960s proved quite wrong.

It is noteworthy here that the Census Actuary's estimate of birth and death rate for 1941-50 which were accepted as official estimates were underestimates when compared with estimates obtained by other researchers. The 14th round of The National Sample Survey (1958-59) estimated a birth rate of 38 3 per thousand and a death rate of 19.4 per thousand for rural India implying a natural increase rate of 18 9 per thousand. The population projections were revised upwards for use in the formulation of third Five Year Plan which also fell short by about 8 million of the 1961 census count of India's population. Since then population projections have been revised officially from time to time.

Since many of the failures in our socio-economic planning are linked with unprecedented population growth over the past 35 years, its impact on four aspects of economic development discussed in the beginning of this paper namely (1) human capital formation ... the dep... indust... reducti... poverty...

Developm...
of educational facilities up to a certain level to all children in a specified age group and expansion of vocational and technical education to meet the demands of skilled manpower of the organised secondary and tertiary sectors. It was earlier pointed out that the objective of free and compulsory universal education in the age-group 6-14 has not been achieved to date and the new target dates are 1990 for the age group 6-11 and 1995 for the age group 11-14. It is very doubtful whether it would at all be feasible to achieve universal education by these dates because, as in the past, the government did not consider the demographic factor in fixing these dates. Moreover, there has also been a serious lack of political and bureaucratic will in this respect.

The Seventh Five Year Plan assumed that the enrolment ratio for children aged 6-11 will be raised from 91 8 per cent in 1984-85 to practically 100 per cent by 1989-90 and for children aged 11-14, it will be raised from 53.1 per cent to 79.5 per cent during the

same period implying an absolute increase in enrolment of 25 5 million in 6-14 age group. As is very clear, it has not been feasible to attain this additional enrolment as a very large number of children aged 6 and 7 in rural areas do not enter in the school system Attainment of almost 100 per cent enrolment ratio for the primary classes will be due to the fact that almost a quarter of the children are overage or underage (mostly overage) in classes I to V

As regards human capital formation of higher order to meet the demands of the organised manufacturing and tertiary sectors, India is facing a paradoxical situation because of inappropriately planned educational growth, On the one hand there has been explosion of the number of educated unemployed, on the other hand, there has been shortage of specific types of manpower. Sometimes there has been an exodus of engineers and doctors to other countries, sometimes unemployment or employment in lower categories of jobs and at other times shortfall, particularly for jobs in rural areas It is, therefore necessary to develop a coordinated system for human capital formation with skills, including those created in the ITS and polytechnics, according to the future requirements of the economy

Population growth and unemployment

It was stated earlier that the backlog of unemployment increased with each plan instead of being dissolved, that is, it has not been feasible to create even as many additional jobs in the economy as the net addition to the labour force during each plan period This has been partly due to the fact that there have been larger increase in the population and labour force than visualised at the time of framing the plans and partly due to shortfall in achieving the employment targets proposed for the plans

It is noteworthy that the estimates of working force as well as the labour force have been substantially effected by the choice of the definition of the worker in different censuses. Efforts were, however, made to use almost similar definition of the worker comparable in the last two censuses, the working force increased from 176.3 million in 1971 to 222.5 million in 1981, or at an annual rate of 2 35 per cent against the population growth rate of 2 23 per cent

While formulating the Seventh Plan, the Planning Commission took a 15 year perspective on the growth of labour force This implied the need for creating additional employment of about 130 million by the end of this century The Commission felt that this challenging task could probably be made possible only through a continued GDP growth rate of 5 per cent per annum, a fast rate of growth of agriculture combined with an even faster rate of growth of industry along with specific employment generation programmes (Planning Commission, 1965, 12) It may be mentioned here that recent evaluation of the "State of Economy" by the present Government does not see the possibility of higher than 4 per c growth rate of the GDP. Under these circumstance is difficult to say whether the Indian economy wo at all be able to generate employment of t magnitude by the 2000 Consequently, it may turn to be still larger back log of the unemployed pers at the turn of the centery

Shift in dependence of population from agricult to industry and tertiary sectors The Third Five Y Plan indicated that of the 8 million exploym opportunities created during the Second Five Y Plan, about 6 5 million jobs were outside agricult Further, taking note of the experience of the first t plans about the creation of larger proportion employment opportunities in the non-agricultu sector, and assuming that that trend would contin the Commission expected that the proportion of working force dependent on agriculture wo decline to about 60 per cent by 1976 Howe because of a faster growth in population a consequently, in the labour force, the major brun providing additional job opportunities during t 1950s and the 1960s was borne by the agricult sector The situation was no better during the 19 except that the urban informal sector took off so load from the agriculture sector, the capital intens nature of industry could hardly provide very m additional jobs

Population below poverty li

As indicated earlier, the government has use variety of instruments ranging from direct attacks poverty and asset inequality to more indirect fis measures to liquidate poverty The available NSS d also indicate that over a period of roughly ten ye between 1972-73 and 1983-84 the proportion population below poverty line has declined v substantially This has been possible through hig rate of economic growth and increases in agricultu production The Sixth Plan also witnessed a mass expansion in the Integrated Rural Developm Programme and a substantial effort at providi employment on rural works through the Natio Rural Employment Programme (NREP) and the Ru Landless Employment Guarantee Program besides the 20-point programme While discuss the "tasks ahead", the Seventh Plan docume however, recognised that the Government has stil play a major role in the development process in or to promote the interests of the poor, reduce disp ties in income and wealth, curb regional inequalit in the level of development, etc as these matt could not be left to the free play of market for (Planning Commission 1985)

The NSS estimates of proportion of populat below poverty line covered only the househ population, it could not obviously cover the housel or institutional population Most of the housel people-pavement dwellers and others are likely to very very poor To that extent our estimates of the below the poverty line are under estimates.

Concluding Remarks

By taking the growth in national income, expansion of elementary education, extent of unemployment in the country, proportion of workers outside agriculture per cent of population below poverty line, and the level of infant mortality rate, the analysis presented in this paper has shown that the country could not acheive the long-term targets set out in the First and the Second Five Year Plans. Although the shortfall in the available resources and unexpected rise in prices were partly responsible for the ills of the economy, the shortfalls in the porjected populations compared to the actual counts in 1961 and in 1981 have also contributed substantially to the present state of affairs in the country. Moreover, in the planning exercises, the analysis has been generally kept at the aggregate level. It is felt that more realistic planning could have been achieved if the population was broken down in appropriate age groups to determine programmes like those for controlling infant and child mortality, expanding pre-primary, primary and middle level education, and for providing jobs to the new entrants into the labour force.

It is noteworthy that the last quarter of the present century is witnessing a very fast pace of urbanisation in the country. According to the latest official population projections, the urban population in March 2001 would be 326 million, more than double the size of 1981 urban population. This would also be roughly 54 per cent of the total addition to the population between 1981 and 2001. The requirment for urban housing and infrastructure would be more pressing since there is already a growing dissatisfaction regarding the availability and quality of basic civic amenities. This is reflected by the simple observation of the thousands of people sleeping in "Rain Baseras" (night shelters) in the night and on railway platforms, pavements and in the open. They take a quilt at night paying a rent of Rs. 3/- per night from contractors since they have no place to live in and no possessions of their own.

The envisaged urbanisation trend implies an annual increase in urban labour force by nearly 3 to 4 million persons during 1985-2000. This, added to the existing magnitude of unemployed in the urban areas gives a broad dimension of the problem of urban employment demand.

In contrast, if there has to be much higher increases in the industrial production and employment in the secondary sector there may be even larger growth in urban population. Hence, the economy has to take care of both rural as well as urban development with a population growth rate hardly declining below 2 per cent per annum. The techno-logical advancement at the global level and their percolation t...
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SELF-RELIANCE
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Planning Commission approves Meghalaya Irrigation Project

The Planning Commission has approved the Rongai Valley Medium Irrigation Project in Meghalaya. It is estimated to cost Rs. 16.30 crore. The Project envisages construction of a barrage across river Rongai and unlined canals on the left and right banks to irrigate annually 5153 hectares of land in the West Garo Hills district of Meghalaya. The barrage will be about 76 metres long. The length of the unlined left canal will be 7.5 Kms, while that of the right canal will be 9.75 Kms. The Gross Command Area of the Project is 4775 hectares, while the Culturable Command Area is 3880 hectares.

Four irrigation projects in Andhra Pradesh okeyed

The Planning Commission has approved the revised estimates of four Medium Irrigation Projects in Andhra Pradesh. The Projects are the Vottivagu Medium Irrigation Project at an estimated cost of Rs. 2870.75 lakh ; the Madduvalasa Medium Irrigation Project at an estimated cost of Rs. 3889.00 lakh ; the Vengalraya Sagaram project at an estimated cost of Rs. 2380.15 lakh and the Andhra Reservoir Project at an estimated cost of Rs. 1312.56 lakh.

The Planning Commission has observed that the projects may be executed on a priority basis by providing outlay commensurate with the outlay provided from year to year for its early completion. While carrying out the Planning studies for a well-planned distribution system, the State Government has been asked to assure themselves that the cropping pattern is taken into consideration for the optimum use of scarce water.

Age limit for civil services exam raised

The Government has announced enhancement of the upper age limit for the civil services examination (CSE) from 26 to 28 years. It is also decided in principle to increase the number of chances from three to four for general candidates. Under the scheme, to come into effect from the civil services examination 1990, candidates belonging to the scheduled castes and scheduled tribes, will have the usual concession of five years beyond the upper age limit. There will also be no limitation regarding the number of chances allowed to the SC/ST candidates. The Government had received a number of representations in this regard.

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Towards self-reliance

Prof. Madhu Dandavate

I WOULD LIKE TO EXPLAIN THE OBSERVATION which I have been asked about several times and which has been made by one of our spokesmen, that when we took over, the coffers of the Government were empty. It was only a picturesque way of describing the situation and it should not be taken literally. It only means that our economic situation is rather difficult.

At the same time, this statement-that our coffers are empty-will be an understatement for the simple reason that far worse than the empty coffers are the debt burdens. At the present rate, by the end of the current financial year the total burden will be hundred thousand crores. In that case the debt sevice ratio of course, will be quite high. Economists have been taking the 20 per cent debt service ratio as a fairly safe ratio, but when it is crossed, efforts are immediately made to reduce the debt subsidies. I am not quixotic to declare that there will be no debts at all, that there will be no borrowings. But the efforts will be to see that firm steps are taken.

As we gradually try to evolve a more self-reliant economy, to that extent the need to borrow will naturally go down and thereby external debts will be reduced. If you ask me a straight question : Will you borrow form the IMF and other financial institutions, I will not give a very clear-cut answer.

Selective

But one thing I would like to stress is that even under the compulsions of the situation in which we are required to borrow, we shall not accept any such conditions from financial institutions that would be against our economic and financial policies and an affront to the nation. We just would not allow that to happen.

As far as import and export policy is concerned, it is a matter of concern. The general thrust of our financial and economic policies will be that even when imports become inevitable, we will try to see that they are selective. Selective means both in terms of the commodities and in terms of the point of time when the imports are made. For example, when the kuo oil deal was struck even the public undertaking committee had unanimously drafted a report in which it was very clearly said that when oil prices were actually falling, arriving at the kuo oil deal at a higher constant price was not prudent. So the point of time is important. We have to keep that in mind so th may not waste our foreign exchange reserves.

There are certain production oriented technologi which components are to be imported. If adec foreign exchange reserves are not available and i components are not imported and replaced, the e production process is likely to suffer and therefor developmental activities will also suffer. So we foreign exchange reserves and for that we will have out of our way to see that exports are augmented, so t will be possible for us to have that foreign exch reserve. The question of the import of capital goo hence very significant. The broad guidelines will be clear, but at the same time the approach will be dogmatic; it will be realistic.

Positive dynam

In one of the interviews I had said that I will confuse dynamism with quixotism. What I mean is dynamism is one thing and acting like Don Quixo something else. In the broad outline to build a reliant economy, there should not be an emphasi multi-nationals and collaborations. At the same time, certain sectors certain technology has to be imported say export purposes, in that case wherever it is neces and inevitable we will welcome it.

Though the picture is not rosy, I would like to i into our economy an element of confidence In political acrimony with my predecesssors I would like to throw out the baby with the bath water. I would to create a climate in the country and outside that w investment is to be made, people may speculate whe the investment may be worth it or not. I would not suspicion to be created at all. For this I would point the reaction of the capital market. Their initial reac was to wait and watch, and they do it with everyone right now, there is a lot of buoyancy there. It is reac quite well. At the same time we have our limitation reacting to market forces. We would not like the poo sections of society to be exposed to the tender mercie market forces.

For the peo

Due to a number of factors, today we find t inflation is on the rise. There are certain matters wh

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Current economic situation – Report of the Economic Advisory Council

DECADE OF THE EIGHTIES HAS SEEN a d of relatively higher growth in the gross domestic ct at around 5 per cent per annum, which compares ively favourably with that recorded by most deve- g countries. Yet the pattern of growth, methods of cing employed, both internal as well as external, been such that, at the end of decade, it would appear the strategy of growth pursued, especially over the ve years, needs some crucial modifications if growth self reliance and equity remains the central focus of nment's policy.

This is because many contradictions inherent in the gy have surfaced very starkly of late and will not go on their own. While there remain certain areas of gth – the resilience of the economy in the face of er stress, the buoyant climate for industrial inves- t, the rapid growth in exports especially during the three years, improvement in some areas of infra- cture – these are not enough by themselves to ensure growth can continue in the same way as before out generating either more inflation, or even greater sure on the balance of payment.

The Economic Advisory Council has drawn attention any of these problem areas in its earlier reports. This rt focusses on the current economic situation, high- s structural imbalances that underlie current prob- s and tries to indicate priority areas for action for oving the imbalances.

A comprehensive review of the economic situation at ent would have to cover many dimensions. This er however focusses on three aspects — the growth pect for this year, the situation with regard to ation and the balance of payments position

Growth prospects

In 1988-89 the economy rebounded sharply from the ck of country wide drought experienced in the ous year. The Gross Domestic Product is ated to have increased by 9 per cent or higher in real , with agricultural production increasing sharply by r cent or so and industrial production recording a h of 8 8 per cent. In the current year, though on rains have been close to normal, it is unlikely gricultural production will rise, markedly from the ase attained last year. Provisional data on the index ustrial production for April-August 1989 indicates h of only 3.8 per cent over the corresponding period of the previous year, indicating a substantial deceleration in industrial growth in first half of the current year after recording an average growth rate in excess of 8 per cent in the past 5 years. Taking these very preliminary estimates into account, and allowing for the usual growth in the services sector in the latter half of the year, it unlikely that GDP growth in 1989-90 will exceed 4 per cent in real terms.

Infrastructure performance in April-October, 1989-90 has been mixed. Electricity generation has increased by 12.3 per cent over the corresponding period of the previous year and crude oil production has also grown by almost 7 per cent. However, compared to growth performance in the corresponding period of 1988-89, there has been a sharp drop in the performance of steel and cement and a decline in coal.

Price situation & money supply

There has been a clear exacerbation of inflationary pressures in 1989 [illegible] registered an [illegible] against 4.6 p[illegible] The annual r[illegible] cent. There is [illegible] October, 198[illegible] the seasonal [illegible] September had [illegible] very weak. The up[illegible] effect in the movements of consumer prices as well. During the current financial year the cumulative change in Consumer Price Index has been 6 per cent.

Inflationary pressures have been particularly acute in certain essential commodities like sugar, gur, khandsari, edible oils and tea. To a certain extent these pressures are due to supply side factors. However, there is now clear evidence of inflationary pressures in manufactured goods like textiles, paper, leather products and metals. The following table indicates the cumulative rise of prices for certain commodities during the current financial year until December 2, 1989 compared with the corresponding period of the last year (Table 1)

Some of the price rise due to supply side pressure may well be moderated by higher production, dehoarding and other measures. But there is no room for complacency as the roots of the general pressures of inflation lie in the imbalance between aggregate demand and supply. Net RBI credit to the Central Government has gone up by Rs. 12,403 crores since the beginning of the financial year

Table 1

Increase in Wholesale Prices in 1989-90

Item	Weight (%)	Percentage change over March-end 1989-90 (Prov)	1988-89	last year (Prov)
Pulses	1 09	12 51	24 78	0 19
Tea	0 56	26 42	14 94	55 51
Sugar	2 01	13 68	4.44	15 20
Khandsari	0 30	44 09	14 05	37 14
Gur	1.75	14 34	6 24	32 45
Edible oils	2 45	10 37	0.29	2 46
Textiles	11 55	10 96	4 38	13.80
Paper & Products	1.99	9 36	1 47	17 21
Leather & Products	1.02	10 67	5 13	12 91
Metals (non-ferrous)	1.03	16 79	23 74	15 68
All commodities	100 00	6 18	4.65	7 21

Table 2

Growth in Monetary Resources by Components and Sources

(Rs Crores)

	Variations during 1988-89 (March 31 to Nov 18, '88)	1989-90@ (March 31 to Nov 17, '89)
Aggregate Monetary Resources (M_3)	**17429**	**22963**
	(10 7)	(12 0)
(i) Currency with the public	3002	4853
	(8 9)	(12 6)
(ii) Demand deposits with banks	563	4286
	(2 3)	(15 7)
(iii) Time deposits with banks	13956	13972
	(13 3)	(11 2)
(iv) Other deposits with RBI	– 92	– 148
Sources of change in M_3 (1 + 2 + 3 + 4 – 5)		
1 Net Bank credit to Government	12187	16331
	(14 4)	(16 9)
2 Bank credit to commercial sector	7538	10905
	(7 0)	(8 6)
3 Net foreign exchange assets of banking sector	8	– 855
	(Neg)	(– 13 4)
4 Government's currency liabilities to the public	61	25
	(4 4)	(1 7)
5 Banking sector's net non-monetary libilities	2365	3443
	(6 6)	(8 7)
Scheduled Commercial Banks		
(i) Gross Bank Credit	3994	8431
	(5 5)	(9 9)
(a) Food Credit	- 1163	194
(b) Non-Food Credit	5157	8237
	(7 4)	(9 8)

@ Provisional

Note Figures within brackets indicate percentage growth over March 31 level

upto November 17. The budget deficit even as of now is clearly running at a level very much higher than projected in the Budget Estimates.

The fiscal imbalance spills over into the growth of money supply which increased by 12 per cent between March, 31 and November 17, 1989 (provisional) as compared to 10.7 per cent during the corresponding period of the last financial year. Demand deposits with banks have registered a higher growth of 15.7 per cent in the period compared to 2.3 per cent last year. The currency with the public has also shown a higher growth of 12.6 per cent as compared to 8.9 per cent in the respective period of 1988-89 (Table 2).

Stocks of foodgrains built up in earlier years were run down quite sharply to meet the pressure arising from the drought of 1987. However, the satisfactory level of procurement during 1988-89 marketing season helped to replenish the level of stocks to some extent. The following table indicates the stocks of food grains until September 1989 :

Table 3

Foodgrain Stocks

(million tonn

Period at the end of	June 87	Sept 87	June 88	Sept 88	June 89	Sep 8
Rice	8 40	5.44	4 16	2 02	3 60	2[illegible]
Wheat	14 93	11 40	7 55	5 92	9 43	7[illegible]
Total (including Others)	23 39	16 90	11 90	8 09	13 05	9[illegible]

Prices of rice and wheat have not been under any great pressure during the current year. But the margin of stock available for coping with any weather stress next year is less than desirable. Every effort has to be made to replenish these stocks. Fortunately, the pace of rice procurement this year is quite high and further improvement in the stock position can be expected.

Balance of p

The macro-economic imbalance has clearly spilled over on to the balance of payments. By 1988-89 the BOP was under severe pressure and significant loss of foreign exchange reserves was being experienced. Indeed, reserves losses would have been substantially higher if they had not been bolstered through expanded programmes of borrowing in various forms. These pressures on the BOP were experienced despite export growth, according to provisional DGCIS data, of 29 per cent (15 5 per cent in US $ terms) in 1988-89 as against import growth of 2[illegible] per cent (11 per cent in US $ terms). Aside from a number of adverse medium-term factors, which will be described later, short-term pressures on the BOP included : a spill over of drought-related imports of essential commodities from 1987-88 , st[illegible]ng demand for import generated by the sharp recovery in production during the year ; continuing high levels of fiscal imbalances and monetary growth ; and high debt repayment servicing obligations stemming from past borrowings.

BOP pressures have continued to be severe during the current year. Despite further expansion of borrowing on commercial terms from various sources, foreign exchange reserves fell further during the year. This deterioration in the reserves position occured despite continued strong

h of exports, provisionally estimated at 17.4 per n US $ terms by DGCIS for April-October, 1989 the corresponding period of 1988. Imports as ded by DGCIS have recorded a sharp deceleration is period and are estimated to have remained lly stagnant in $ terms as compared to the same d in the previous year. However, it must be noted mports during the corresponding period last year high because of the spillover of drought related rts. In addition, the import figures for this year do not de some imported civilian aircraft which have ed but are not relfected in the DGCIS data. If these s are taken into account, the underlying import h would look significantly larger. The unabated ure on the foreign exchange reserve position sug-that the sources of BOP pressure in the current year artly from the trade account and partly from orations on the invisible and capital accounts of the

Pattern of growth

urthermore, they would seem to imply that instru-s for management of balance of payment which rely anging to price relativities of exports and imports ot adequate in themselves. Quantitative changes as as maintaining favourable price relationships are y essential.

he economic uncertainties confronting the economy ot just a short-term phenomenon. They reflect the gence of a linked set of structural imbalances in the n of growth, the fiscal system and the balance of ments.

he record of aggregate economic growth during the nt decade has been strong and GDP, at constant s, grew at about 5 per cent per year on average upto 7-88 At the sectoral level, value added in agriculture at around 2 per cent, in manufacturing at around 8 cent and in the services sector at around 6 per cent. ing into account the performance in 1989-90, the ll growth rate for the eighties will show a similar rn.

Gross industrial production, which grew at a little r 6 per cent per year during the Sixth Plan period, had lerated to average 8.5 per cent per annum during the t 4 years of the Seventh Plan. On the other hand, gross cultural production, which grew at 6 5 per cent per r in the Sixth Plan period, has decelerated to a little r 4 per cent per year in the first 4 years of the Seventh . Even more disquieting is the marked fluctuation in ltural growth during the present decade which hts the continued dependence of Indian agriculture eather conditions. The volatility in agricultural h appears to be significantly greater in foodgrains ction as compared to non-food crops, even though erage rate of growth in gross pr[illegible]ction of these roups has not differed significantly in the present e.

he regional spread of agricultural growth shows eting features. There is some evidence to suggest he foodgrain production growth rate fell sharply in uthern and Western regions but rose in some of the more populous parts of the North and the East. A particular cause for concern is the stagnation or decline in per capita agricultural incomes in some of the populous States.

With regard to industrial production a significant and perhaps worrisome feature in the present decade has been the variation in growth performance recorded by different groups of industries. The growth of intermediate goods and consumer non-durables have averaged significantly lower than the growth of consumer durables. This may reflect an industrial production pattern skewed in favour of richer sections of society It also reflects the rapid growth in organised sector incomes in this period. There are also reasons for supposing that the production of certain consumer durables is quite import intensive. A further problem with the growth in the production and use of cars, scooters, etc. is the rapid increase in the demand for motor gasoline which has been rising at over 10 per cent per year on average in three years.

Key infrastructure sectors, such as energy and transportation have performed reasonably well during the present decade. But much of this reflects higher utilisation of existing capacities, suggesting that the necessary growth in infrastructure output in the coming decade will require heavy investment of capital and changes in the organisation and efficiency of supply systems With regard to energy the high rate of growth of POL (Petroleum, Oil, Lubricant) demand gives cause for concern. The POL import bill had been contained by the rapid rise in domestic crude oil production during the Sixth Plan. But in recent years this import bill has started rising and would pose [illegible] problem for BOP management in t[illegible]

The fragile [illegible] situation refle[illegible] important to [illegible] Seventh Five Y[illegible] the pattern of [illegible] what was anticipa[illegible] financing greatly exceeded than what was p[illegible] Central Government's Budget deficit, as conventionally defined, has fluctuated around 2 per cent of GDP through this period. However, during this period the revenue deficit increased sharply and amounted to almost 3 per cent of GDP in 1988-89. The 1989-90 Budget projected a significant improvement but, as stated earlier, current indications seem to suggest that the actual out-turn will be distinctly worse.

The large revenue deficit in the Central Budget means that a significant part of revenue expenditure is now financed by borrowed resources on which there are interest and repayment liabilities. In fact, the revenue deficit is significantly larger than the borrowing through the low cost adhoc treasury bills. Thus, the borrowed resources used to meet revenue expenditures include higher cost borrowings also, which becomes inevitable when borrowings become large

The problem is not merely one of borrowed resources financing current expenditures. Even on the remunerative

activities the rate of return to investments has stagnated and the return flow by way of dividends and interest to the Budget has remained small. The capital invested in central Public Enterprises has gone up to Rs. 71 thousand crores as of 1987-88 and pretax profit as a percentage of capital employed has stagnated around 6 per cent. In the state sector the situation is even worse. The commercial losses of SEBs have risen steadily and amounted to as much as Rs. 2700 crores in 1988-89. In the same year the losses of departmentally run undertakings of the State Governments were around Rs. 1500 crores, of the Road Transport Corporations around Rs. 250 crores.

Larger revenue deficits have also eroded the capacity to finance Plan expenditure The balance from current revenues available for financing the Plan and capital expenditures has turned into a large negative figure by 1988-89

Conventional measures of deficit do not reflect fully the Government's draft on domestic savings. The gross domestic borrowing requirements of the Central and State Governments which cover all domestic capital receipts and deficit financing increased from 7 8 per cent of GDP in 1980-81 to 11.4 per cent by 1988-89 (Revised Estimate). The resources borrowed by the Government are deployed partly in commercial activities But a significant part of the borrowed resources goes towards covering the revenue gap and non-remunerative capital expenditures. Since the commercial activities also do not generate a sufficient return flow, this means that interest payments are not counterbalanced by a return flow of income in the Budget. On top of this the eighties have seen a significant increase in the share of higher cost borrowings in the form of small savings, provident fund, etc.

The net consequences of this pattern of budgetary financing is a substantial increase in interest payments which have gone up from 11.6 per cent of total expenditure in 1980-81 to 19.2 per cent in 1989-90 (Budget Estimate) in the Central Budget. An even more disturbing feature is the rise in net interest payments (i e. gross interest payments minus interest receipts), which has gone up from 3.6 per cent in 1980-81 to 10.1 per cent in 1989-90 (BE)

The pressures on the Central Budget from the expenditure side have come not just from the rising burden of interest payments, but also from a significant increase in defence expenditures which, as a percentage of GDP have gone up from 2.9 per cent in 1980-81 to 3.8 per cent in 1988-89 (RE) The subsidy bill in the Central Budget has also gone up from 1.4 per cent of GDP in 1980-81 to 2.0 per cent in 1988-89 (RE). Besides these explicit subsidies, there are other implicit subsidies in the form of interest concessions, tax reliefs, below cost supply of services which are not included in this figure. Yet another factor is the wage and salary bill of the Government. In the case of Centre this has gone up from 1.8 per cent of GDP in 1980-81 to 2.2 per cent of GDP in 1988-89 (Revised Estimate).

The tax to GDP ratio has gone up in this period but, as is clear from the rising revenue deficits the increase has fallen well short of the growth in expenditure. Thus, for the Centre and the States taken together, while the tax GDP ratio has gone up by 3.3 points, the outlay-GDP ratio has gone up by 6.6 points. Over this period Centre's tax revenue, in nominal terms, has increased at an average annual rate of 17 per cent whereas revenue expenditure has increased by 18.4 per cent.

The basic structural imbalance lies in the mismatch between revenue receipts and revenue expenditure A sustainable fiscal system requires that revenue receipts should cover not just all revenue expenditure but also have a sufficient surplus atleast to cover non-remunerative types of capital expenditure. Even this would not be sufficient if the remunerative capital expenditures in the Budget do not earn an adequate return. The correction of this fiscal imbalance is perhaps the most important step for raising the savings rate in the economy.

However, this does not mean that there are no problems with regard to private savings. The overall savings rate in the economy has tended to stagnate around 20-21 per cent during the eighties despite the rapid rise in incomes. The financial structure that we have built up over the years and the buoyancy in the capital market provide a useful basis for raising financial savings

External imbalance

The foreign trade deficit widened sharply to equal 4.4 per cent of GDP in 1980 81 following the "second oil price shock" of 1979-80. The strategy of incremental and cumulative import liberalisation launched in 1978-79 was not reversed. Instead, the policy was maintained and further initiatives undertaken to deregulate domestic industrial production. The adjustment in the BOP during the Sixth Plan period to the international oil price hike took the following forms :

(i) Reduction in POL imports which was made possible by the sharp increase in indigenous oil production (from the Bombay High field discovered in the 1970s) from around 11 million tonnes in 1979-80 to almost 30 million tonnes in 1984-85. POL imports permitted non-oil imports, as per cent of GDP, to rise steadily over the Sixth Plan period, even though total imports as a proportion of GDP declined over this period ;

(ii) Adjustment was also aided by strong agricultural production (after the severe drought of 1979-80) which obviated the need for large scale food imports

(iii) The large trade deficits experienced in the early years of the Sixth Plan were substantially offset by levels of net invisible earnings, especially on account of private remittances from Indian workers in the oil exporting countries and elsewhere.

(iv) The Government also took recourse to a programme of external commercial borrowing (ECB) as well as a large loan from the IMF to help tide over the financing problems in the Sixth Plan period

The major BOP adjustment failure over the Sixth Plan period was lacklustre export performance, with export volume growth averaging under 3 per cent per year and culminating in a decline in export volume in 1985-86 As a consequence of this dismal export trend, the ratio of

ts, according to DGCIS data, had falled to as low as r cent in 1985-86. That is, exports amounted to y half of the total import bill.

he Government launched a wide array of export oting measures in 1985-86, including the inition of a competitive exchange rate policy. These measures strong export volume growth averaging 10 per cent ear in the next 3 years.

owever, given the low starting base of the export-t ratio in 1985-86, and the other adverse strains on OP, pressures on the BOP continued to mount the remainder of the Seventh Plan. Such medium-pressures were further exacerbated by:

he plateauing of indigenous oil production in the ce of continually rising domestic demand for POL; e adverse impact of which on balance of payments ould have been much larger but for the fact the orld oil prices have remained subdued during this eriod;

he launching of the new and more liberal 3-year mport-Export Policy for 1985-88;

Levelling off of workers' remittances from abroad;

Steep rise in debt service payments associated with arlier borrowings from diverse sources;

The countrywide drought of 1987-88 which entailed eavy imports of food and other essential commodities and constrained agricultural exports;

A tax and trade policy structure which created ncentives for import-intensive industrialisation cate-ing to the protected domestic market;

Some evidence of growing import-intensity of exports, with exports expanding more rapidly in import-intensive areas like gems and jewellery.

The much higher level of current account deficit in the eventh Plan period coupled with the growing relative mportance of commercial forms of financing have led to significant deterioration in India's external debt and ebt service position.

Rising debt services

The stock of India's medium and long-term external ebt (disbursed and outstanding) on Government account, on-Government account, external commercial borrowngs and IMF is estimated to have increased from s. 18400 crores (US$ 22466 million) at the end of 980-81 to Rs. 68831 crores (US $44032 million) at the nd of 1988-89. Over the same period the debt service on ebt increased from about Rs. 1100 crores to around 9000 crores in 1988-89. As a proportion of current ts (exports plus gross invisible earnings) the debt e ratio on medium and long-term debt is estimated e risen from 9.2 per cent in 1980-81 to 12.3 per n 1984-85 and further to around 23 per cent in 89 The external debt and debt service ratios ed here do not include non-resident deposits which rown from Rs. 1090 crores (US $ 1331 million) at d of 1980-81 to Rs. 14154 crores (US $ 9055 n) at the end of 1988-89. Thus, external liabilities count of medium and long term debt and NRI deposits were around Rs. 83 thousand crores as of end March 1989 and, looking at current trends, in the balance of payments, will rise further this year. Besides this, there are short term assets and liabilities which are part of trading operations.

Though India's external debt is large in absolute terms, the debt-GDP ratio and the proportion of concessional debt are more favourable in India than in the 17 higher indebted countries (HIC) identified as problem debtor countries by the World Bank. In these 17 countries debt-GDP ratios average around 60 per cent, while in India the ratio of external liabilities (including NRI deposits) is only a little over 20 per cent. The proportion of concessional debt is as much as two-third of medium and long-term debt as against only 6-7 per cent for HIC groups. Thus, while rising trends in India's external debt and debt service constitute serious cause for concern, the situation is not one that threatens immediately and solvency or credit-worthiness of the country. The real problem is that the burden of debt service reduces greatly the room for manoeuvre on the developmental front as well as the choice of development strategies.

Priority areas

The priority areas for action are closely related to the structural imbalances that we have referred to earlier. These imbalances have built up over time and cannot be corrected all at once. However, even if full adjustment will take some years, immediate steps need to be taken to set the economy on the correct path

The pattern of dev[illegible] has to be seen in the con[illegible] persistence of [illegible] population co[illegible] annum. This [illegible] Planning mea[illegible] education, m[illegible] employment

The increase [illegible] is already determined [illegible] provision of gainful employment has to become a central part of development strategy in order to cope with this increase.

The central task is to aim at a higher and less volatile rate of agricultural growth. Moreover, this growth must be diversified by crop and by region. In particular, agricultural growth rates must be raised in the populous regions with a high incidence of poverty.

In this context, particular attention has to be paid to agriculture in rainfed and flood prone areas. Agricultural research and extension and the support systems for production must be reoriented to meet the special requirements of these areas which are prone to different types of weather related stresses

Demand patterns are changing and in eighties the pressures of shortages have tended to be felt more in non-cereal agricultural products. It is also true that the pressures of shortages and high prices on consumer standards are felt particularly acutely in regions which

are lagging behind in agricultural growth and which have a large number of poor households. A higher and more diversified pattern of agricultural growth will mitigate these shortages and generate additional incomes and spending powers on a more wide spread basis.

Wage goods

The pattern of industrial growth also needs to be corrected. As stated earlier, a significant part of growth has been in consumer durables which cater to a fairly limited segment of the population. The demand for such durables and high value non-durables in absolute terms is very substantial and has come from the rapid growth in organised sector incomes. The direct and indirect foreign exchange content of meeting these demands is very high and has contributed in no small measure to the current balance of payments problems. A diversified pattern of agricultural growth and more rapid employment generation in rural areas will generate a different type of demand for manufactured goods which can be met at lower cost in terms of capital and foreign exchange. In this sense, the restructuring of industrial growth will be a consequence of the reorientation of agricultural growth that we referred to earlier.

The reorientation of development strategy that is being suggested will shift the focus of growth to the production of essential wage goods in preference to consumer durables. Such a shift will help in generating employment. In fact, it is a necessary requirement for an employment oriented strategy since more rapid employment generation will tend to increase the demand for wage goods. Such a strategy will also contribute towards the generation of non-agricultural work opportunities in rural areas which will reduce urban drift and the pressure on agricultural land.

Stress on quality

Another area where corrective measures are required is in the production of capital goods and intermediates. The benefits of competition and technology upgradation have been felt most in the production of some consumer goods. Similar benefits do not seem to have accrued in the production of industrial machinery, basic metals and other intermediates. It is also not at all clear that one of the basic rationale for liberalisation to build import substitution as a base for promoting "efficient export substitution" in keeping with long-term comparative advantage, has been well served by the policy regime that has been adopted so far. A major task in the next few years must be to ensure through appropriate policies a reduction in the cost of industrial raw materials and intermediates and an improvement in product quality particularly for capital goods. The industrial, trade and fiscal policies which affect these basic sectors of industry must be re-examined for this purpose.

Infrastructural development is central to the growth process. In the recent past, there have been significant gains in productivity in the power and transportation sectors. This improvement in productivity made it possible to sustain the relatively high growth rates that we have seen in the eighties. However, now, the growth process will require efficient systems integration and higher investments in critical items of infrastructure. It is, therefore, most important that the nature of technologies used in these sectors are closely examined so as to economise on capital costs. Policy changes to economise on use are also necessary. Thus, in the energy sector, promotion of conservation and an emphasis on public as distinct from private transport are very necessary.

The growth of the tertiary sector by and large follows the pattern of growth in the primary and secondary sector. However, there are some elements of autonomous growth mainly in non-productive sectors like public administration and defence. Containment of non-productive service employment of this type must be given high priority. In fact, it is absolutely essential for the purpose of fiscal management.

Fiscal management

The correction of the fiscal imbalance is central to any viable development strategy for the short or medium term. The principal consequences of fiscal imbalance are inflation and balance of payments pressures. In our social context inflation hurts the poor and is inconsistent with any equity oriented development strategy. In an inflationary situation speculative gains from shortages, real estate booms and similar distortions lead to a misdirection of savings and the generation of black money which further compounds the fiscal imbalance and inflation. The cost of capital for productive activities increases and the distortions also spill over on the balance of payments. Hence fiscal balance is essential both for growth and for equity.

The first task is to contain the growth in non-developmental expenditures, The reduction in tensions in the world as a whole and improved relations with our neighbours can provide the basis for containing defence expenditures which are a substantial burden not just on the budget but also on foreign exchange reserves. In other areas of public activity wasteful expenditures need to be controlled by inculcating a sense of austerity and greater attention to cost effectiveness in expenditure control mechanisms. The subsidy burden both in the Central and State budgets needs to be controlled mainly by ensuring that the anti-poverty subsidies are tightly targetted at the poor and promotional subsidies are carefully justified in terms of results. The rising burden on interest payments in the budget can only be contained by re-examining the pattern of budgetary financing and ensuring that revenue expenditures as also capital expenditures of non-remunerative kind are fully covered by revenue receipts. Containment of expenditures on the above counts is particularly necessary because the type of growth that we should aim at will require enhanced expenditures in agricultural and rural development, education, health and technology development and extension. These latter expenditures have tended to suffer when budgetary pressures mount. But they are essential for growth and equity and should receive high priority in public spending.

Greater prudence in expenditure planning will not necessarily bring down the ratio of public expenditure to GDP but it will redirect the expenditure in direction which are essential for the reorientation of growth. The

revenue requirements of Government will increase and it is essential that the tax to GDP ratio rises in pace with the increase in expenditure. The most important issue here is measures to ensure compliance and a closer look at some of the tax reliefs built into the system. Non-tax revenues must also be maximised by making public funding of commercial activities contingent on these activities generating a sufficient return flow to the budget.

A better fiscal balance and, therefore, a moderation in monetary growth and diversified agricultural growth will help to contain inflationary pressures. This in turn will help to bring down nominal interest rates as also to promote rapid exports.

B O P management

The resolution of the imbalance in external payments is closely linked to the correction of the fiscal imbalance. This latter imbalance reflects an excess of aggregate demand over supply. This spills over onto the balance of payments either by way of imports to contain inflationary pressures or less of competitiveness in exports. However, there is a transformation problem. A demand reduction to correct the macro imbalance will not, by itself, correct the imbalance in external payments fully. A lot depends on the types of demand that are reduced.

The key to the correction of the external imbalance lies in the trade account. The trade deficit as reported by DGCIS will narrow this year. However, the degree of improvement is not enough to offset the absolute increase in burden of debt service and the stagnation in earnings from visibles.

Export growth must be maintained. But a special effort is required to increase value added exports more rapidly. As we pointed out earlier, the import intensity of exports is rising and even a 40 per cent export increase does not generate enough by way of net foreign exchange to provide some margin for manoeuvre in planning essential imports. It must be ensured that the domestic resource cost of import intensive export, subsidisation of high cost and import-intensive exports must be avoided.

Agriculture and mining are sectors which can provide high value added exports. In the short run exports of selected products from these sectors can be promoted by restraining domestic demand, particularly when products concerned cater mainly to better-off consumers. In the medium term higher exports will call forth higher production since the profitability of exports is quite high for many agricultural and mineral products. The policy changes required to stimulate higher value added exports must be made as quickly as possible.

A degree of prudence in imports will also be required in the immediate future. The reorienting of industrial growth away from import-oriented consumer durables will in itself help to restrain import growth. Industrial policy can also help to promote efficient import substitution. However, some stringency in the availability of imported inputs and capital goods is unavoidable in the short run. A clear sense of priorities must inform this effort at import compression. Larger capital intensive projects with a substantial requirement of imported machinery should be re-examined and new starts on such projects should be staggered in the light of production priorities. Import compression of current inputs must also be based on these production priorities.

Balance of payments management also requires that close attention be paid to the management of the capital account. Increasingly the pressure on the balance of payments arises from the increase in the absolute burden of debt service. The ultimate correction for this is, of course, a substantial improvement in the current account that reduces the need for high cost borrowings. In the interim the structure of our external liabilities must be managed by special efforts to maximise the use of concessional assistance and careful and prudent policies towards commercial borrowings in all forms.

Concluding observations

The analysis presented above suggests that basic imperatives stemming from the current economic situations would require the country to concentrate on removing fiscal imbalance, greater efficiency in the utilisation of existing production assets, import rationalisation. and export expansion in high value added areas. Management of the price line would require, in addition to the above measures, certain supply side adjustments affecting availability of essential wage goods. In the medium term context, what the country should aim at is to devise a strategy that concentrates on a broad based growth pattern with adequate emphasis on removing disparities between section of population and region rather than aim at a high rate of growth in aggregate output than was achieved in the Seventh Plan.

The tasks before the country are doubtless serious and daunting but we believe that they are manageable. provided judicious decisions are taken urgently and implemented expeditiously

(Official)

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Economic significance of biotechnology in India

Anjana Chatterjee

Biotechnology is an emerging technology with great potential. The country has the necessary talent to harness the potential of this technology. The author suggests that a perspective plan be prepared to suit our needs and an effective monitoring and co-ordinating mechanism devised for achieving tangible results.

TECHNICAL INNOVATION AND RESULTING changes is the key to the process of economic development. Determining the choice of future technologies thus becomes important economic priority for the nation. Today we are living in a society which is witnessing results of technological developments at such unprecedented rate which could not have been imagined even 50 years back. The two growth periods of the last century and the third wave lasting from the turn of the century until the beginning of the second world war, were succeeded by the fourth wave which began after the second world war and gave the world extended growth period which continued until early 1970's. This development period gave impetus in the fields of Petrochemicals, Agriculture, Electronics, Nuclear Technology, Computer Technology, Telecommunications, Automation and Aviation. Question now being asked world wide is, where do we go from here and when does the next growth phase begin ? Just as the technological achievements of yesterday determined the industrial present, our industrial future and economic well being of our people will be determined by according right priorities in selecting technologies for the future One of the emerging technology which has immense potential for a developing country like India, needs attention from all concerned The economic significance of this technology is such that while India is yet to catch up with present technologies in the fields of Petrochemicals, Aviations etc., which are mentioned above, in the field of Biotechnology the technological gap between advanced nations and India could be narrowed down considerably by the turn of this century and in the field of Biotechnology India can be the leader in certain areas of application

Biotechnology, defined in a broad sense, is the application of biotechnological organisms and molecules to technical and industrial processes. The fermentation process which were first established after the second world war were used to produce new products such as steroids, antibiotics and fine chemicals. And the biotechnology arises from a wave of innovation occuring within this fermentation process and results from application of different techniques. It generally implies the application of novel microbes and other living systems, altered or modified through various technologies like genetic engineering. Bio-technological tools enable us to manipulate the core of all living matters, i.e., the DNA, in a manner resulting in enhanced or even totally new properties in plants, animals and micro organisms, thus providing vast scope for application in many areas like accelerated food production, disease control, environment protection and improvement etc. In other words, its applications are multisectoral.

While much is being written and debated about electronics and telecommunications, real scope and potential of biotechnology and its economic significance needs to be brought into focus Already rapid advances have taken place in Europe or the USA. In India about 38 research institutions are involved in R & D works on biotechnology. As it holds great promise, it is felt that if properly harnessed, biotechnology could well cause a large enough change in economic conditions to the extent that it will have an impact on the total global economic power equation Potential application areas of biotechnology are discussed below.

Agriculture

Biotechnology holds considerable potential for improving agricultural productivity Implications of such improvements will be felt on the economy of our country. The national priorities in agriculture include use of biotechnology More specifically impact of following developments merit attention :

(i) *Bio-Fertilizers*

Experience in India reveal that our farmers are yet to derive full benefit from use of inorganic fertilizers besides its higher price Per hectare use of inorganic fertilizer is only 30 kgs in India as compared to 475 kgs in Japan. Instead of increasing the use of fertilizers, it is being increasingly realised that the

same function could be achieved bv improving and transferring nitrogen fixation ability in plants. In this context, micro organism such as rhizobium. azobacter. clostridiam and blue algae as nitrogen fixers. becillus subtiles and micrortigal fungi as phosphate solubizers: azolla as organic matter contributor & nitrogen fixer and throbacilles as sulphate producer, holds great promise. For example, it has been established that certain micro-organism like rhizobium inoculents can fix 50-100 kgs of nitrogen per hectare of land and others like azotobacter can serve the dual purpose of meeting the nitrogen requirement as well as preventing the crop from some fungal diseases. It costs less than Rs. 10/- per hectare, the consequential increase in crop productivity is usually more than 20%. Benefits are thus substantial.

(ii) *Bio-Insecticides and Bio-Pesticides*

It is estimated that about 48% of all potential food pre and post harvest in the world are destroyed by pests. To control this problem, chemical pesticides have been in use for a long time. Application of these pesticides have caused numerous changes in agro-ecosystems and adjoining natural ecosystems. Many of these changes can have a detrimental effect on agricultural production and quality of the environment. Intensive and recurrent use of some of the chemical pesticides leads to toxicity in the environment and pesticide resistanceness in target posts. Biotechnology offers several means of overcoming the deleterious side effects by allowing farmers to adopt alternative strategies towards pests control. These include the use of biological control agents, attractants and growth affecting agents.

(iii) *Hybrid Seeds*

Hybrid high yielding seeds are the key for increasing yields of seeds in general and oil seeds in particular in India. Hybrids are the product of the union of two different geneo-types and capable of performing their functions more efficiently than their parents under different agronomic conditions. This is usually done by biotechnological methods

(iv) *Artificial Seeds*

Development of artificial seeds consisting tissue cultured embryos encapsulated in protective coatings is an emerging area for the production of unlimited quantities of quality seeds.

(v) *Photosynthesis Improvers*

Photosynthesis improvers are a series of new, naturally occuring chemicals which have the potential for advancing plant productivity Scientists have established that even 1 part per million (ppm) dosage can increase photosynthesis in plants by 100% or more and increases the yields of crops such as cereals, pulses and vegetables from 15% to 100% depending on the species.

(vi) *Stress Resistant Crops & Plants*

New Biotechnological technological techniques have enormously increased the scope for evolving improved varieties of plants of all kinds. It is now feasible to develop and fast propagate plants that are resistant to different constraints such as, drought, salinity and various pests and diseases. One of the advantages of having such crops is that the need for pesticide application is completely oviated thereby bringing down input cost and damage to ecosystem.

(vii) *Tissue Culture*

Out of the various biotechnological techniques for agriculture, tissue culture is the most promising one. Technique involves taking out a piece of growing tissue of a plant, disinfect it and culture it in a suitable medium so that the mass of the cells begin to reorganise into whole plant, tiny facsimile of the original. This implies that from a single plant possessing all the desired characteristics, virtually unlimited doses can be propagated. The advantage of the tissue culture technique is the propagation of true progenies ensuring uniform growth and productivity behaviour for each species in given agro-climatic environment through successive generations.

Animal husbandry

Animals meet, the milk, meat fibre and drought power requirement of the country. The application of biotechnology in this area in increasing production efficiency through manipulation and control of physiological systems and improving the health and well being of animals assumes a very great significance. India is estimated to have 200 million cattlehead, nearly half as many buffaloes, 82 million goats, 41 million sheep and about 10 million pigs. Present milk production in the country is around 40 million tonnes. Target for milk production in the year 2000 AD is 80 million tonnes. Biotechnological techniques like manipulation of reproduction process in livestock through multiple ovulation embryo transfer, embryo sexing, invitro fertilization and closing through micro surgery are most promising ones to achieve the targeted improvements in yield. In all the techniques mentioned above, emphasis is on increasing productivity and production without increasing number of animals in view of the tremendously high pressure on fodder and feed. Prevention and control of animal diseases is yet another area of application of biotechnology for increasing productivity.

Aquaculture

With 7000 kms of coastline and 4.5 million hectares of water area as ponds, tanks and lakes, aquaculture potential of India is yet to be harnessed fully. The potential areas of application of biotechnology in Indian fresh water aquaculture are recycling of organic matter, biological nitrogen fixation and genetic transfers. For example, average yield per hectare per annum of prawns in countries like Thailand, Philippines, Taiwan, Hong Kong etc. is 10-12 tones compared to 300-400 kgs in India. Above levels of high yields is possible by systematic use of marine biology and pisciculture knowledge

Human health

Use of biotechnology in improving human health has far reaching consequences. Areas in which impact could be felt are given below :

(i) *Vaccines*

Tissue culture based vaccines now could be produced in mass scales. These vaccines are highly effective and thermostable. Due to new techniques used in production, it will be able to retain its potency in near normal conditions. There is also emerging new concepts of vaccine cocktails which are being produced by the use of biotechnology. With such vaccines an infant can be immunised against half a dozen diseases with at the most 2 doses.

(ii) *Immunodiagonistics*

Biotechnological techniques are being increasingly used for effective diagnosis of diseases. These techniques provide much convenient and efficient method for diagnosis through serological tests, each requiring only a few minutes. Diagnostic kits have also been developed for early detection of pregnancy.

(iii) *Medicines*

Newer methods of manufacturing medicines, for example, penicilline by using biotechnological techniques are being developed. This eliminates several manufacturing stages compared to conventional process thereby reducing costs. In addition, some new drugs are being found suitable for combating diseases, namely diabetics, cancer and others.

Population control

For population control in India, it is necessary to make available simple and dependable device for birth control. Biotechnological advances indicate some useful immunological approach to the control of fertility. Certain naturally occuring hormones are being developed into a safe, efficient and long acting vaccine to prevent conception. Since some of these vaccines would be reversible and free from side effects and other possible complications, the chances of these contraceptives being accepted by eligible population appears to be bright.

Fuels & fodder

Green cover and environmental improvement is the need of the hour in view of continuous shrinkage of the area under forests and green fields for fodder usage. The tissue culture technique for mass multiplication mentioned earlier offers means of not only rapid and mass multiplication of existing stocks of germplasm for woody and biomass energy production but also for rapid afforestation of degraded forests and for regeneration of green cover.

Biomass from varied sources

Biomass is the utilisable source of carbon for biotechnological processes. Highest proportions of biomass is produced in forests followed by grasslands and agriculture. Present net utilisation and productivity from biomass is very poor. Biotechnology could play an important role in three ways in this field : by increasing the amount of biomass available, by improving its conversion into versatile fuels and reducing the pressure on existing sources of energy by energy saving processes and improved recovery of fossible fuels. Two main products of biomass conversion will be gaseous methane and liquid ethenol, other products like solid fuels, hydrogen and low energy gasses will be also available. Cultivating energy farms could be very appealing to oil deficient economy like India as it would utilise the enormous advantages of local resources of land and universal resources of the sun.

Wastes

Biotechnology has already evolved methods for using aerobic as well as anoerobic microorganism for purification of industrial wastes and sewage. Microbiological strains could be isolated in order to control various forms of toxic pollutions. Microbiological processes to control oil spillage, slime. grease in pumping systems and metal concentration in wastes and to convert toxic components of wastes into non-toxic biodegradable materials have also been developed. Bacterial leaching in mining and use of micro-organisms or compounds made by microbial processes to coax entrapped oil from abandoned oil wells and oil shales are other areas of great commercial potential.

Chemical feedstock

Biomass as a source of chemicals has aroused greater interest in the world after the petroleum price hike. Also this provides a renewable resource compared to conventional sources that are being exploited in the chemical industry In addition to the sources of feedstock, biotechnology offers economical process steps in bringing down the unit cost of production. Biotechnological processes do not require high energy inputs and capital costs and results in reduction in pollution in chemical process industries. Partial or complete switch over to biological processes are now possible in many instances.

Following tables indicate in quantitative terms the economic significance of biotechnology.

Forecast of world market for Biotechnology, By 2000 AD

		US $ mil.
1.	Energy (ethenol, methanol, enhanced oil recovery)	16,350
2	Food	12,655
3	Chemicals (ethylene oxide, glycol, methanol, isopropanol amino acids)	10,550
4.	Health care (vaccines, antibiotics, hormones, blood products)	9,080
5.	Agriculture (fertilisers, modfied crops)	8,546
6	Metal recovery (copper & nickel)	4,570
7	Miscellaneous	3,000
8	Pollution Control	100
		64,851

Impact of Biotechnology on energy recovery and Bioenergy production

Areas of Impact	World Market in Million US $, year 2000
1 Biomass conversion	
Fthenol	45,000
Methanol	6 000
2 Fnhanced oil recovery	10 000
3 Desulphurisation	
Coal	6,000
Oil	8,000
	75,000

Impact of Biotechnology on the Feed & Food Industry

Areas of Impact	World Market in Million US $, year 2000
1 Food & Feed additions	
Amino acids	535
Flavour enhancers	1,800
Vitamins	1 500
Flavour & Fragrances	600
Sweetners	2 500
Biopolymers	700
Others	2,900
2 Microorganisms	
Bio-conversion	50
Single cell proteins	388
	10,965

Estimates World Biotechnology Pharmaceutical Market

Application	Million US $ year 2000
1 Diagnostics	600 - 800
2 Therapeutics	800–1000
3 Others, Research products	10
Purification	10

Potential Biomass Resources of India

	Availability (Million Metric Tonnes (MMT) per year	Cost equivalent (MMT/ Year)
Agricultural Resources		
Rice straw	90 00	58 40
Rice husk	19 90	15 70
Jute stock	2 50	2 30
Wheat straw	50 00	37 50
Cotton stalks, linters & hulls	13 00	11 00
Agro-Industrial by products		
Biogasses	28 10	22 40
Molasses	2 10	0 80
Coconut husk & shell	1 00	1 10
Saw dust	2 00	3 40
Oil seed cakes	6 70	0 90
Cattle dung (wet)	1335 00	128 00
Forest products/residues		
Mahua flower	1 00	0 40
Leaves, tops etc	3 30	3 00
Total	1554 60	285 50

While reviewing the data given in the above tables, it should be noted that these are the estimates based on current level of technological development and mostly reflects the experience of advanced countries in this field. Far greater potential thus could be foreseen once the fruits of this technology percolates evenly to all nations. However, above information gives us enough insight into how things are going to shape up in this field in the foreseable future and set up priorities in our plans for harnessing it.

Enviable position

Among the developing countries, India is uniquely placed to tap the potential of biotechnology for economic development. A large number of national laboratories and R & D establishments in public and private sectors are already engaged in basic as well as applied aspects of biotechnology. Similarly a vast pool of technical and scientific manpower is available who could be oriented into biotechnological techniques. India has already pioneered a certain innovation in this field. However, the fruits of biotechnological advances in the country has so far limited impacts. In some aspects, this technology is in its infancy and one of the big problems is that it is going against some very well established conventional application areas. Also more experience and knowledge needs to be acquired before inventions could be transplanted into actual practice. Thus, while economic importance of biotechnology cannot be overstated, at the sametime there is danger of understating the problems associated with it. For accelerating propagation of this technology, it will call for integrated cooperation of chemists, bio-chemists, microbiologists, process engineers, financial analysts and economists.

In accelerating the pace of biotechnology industry within the country, a conducive environment has to be created by the policy makers in India. Tax and financial incentives act as major factors to the successful development of a biotechnology industry. Infrastructural facilities such as well equipped laboratories manned by competent technologists, availability of instruments etc., have to be facilitated. A promotional agency needs to be organised for the development of genetic engineering and biotechnology. It would be worthwhile to set up centres of excellence which include research institutions, private as well as public undertakings carrying research in the priority areas. It is believed that intermingling of technologists, industrialists, academicians and planners would provide an immense opportunity of a break-through in biotechnology industry in India. □

Entrepreneurship development in small scale sector

Dr. D. Himachalam

Entrepreneurship development and small scale industry development are the obverse and reverse of the same coin, says the author. Though the Government and financial institutions have done a lot in this area through EDP Programmes, we have still failed to attract the class of people for whom these programmes are meant. The author, therefore, puts forth a few suggestions to make entrepreneurship development and through it, the development of SSI a reality.

ENTREPRENEURIAL DEVELOPMENT IS a complex phenomenon. Entrepreneurs play a key role in the economic development of a country. Importance of development of entrepreneurship as an ingredient of economic development has been recognised long time back. It was as early as 1950, that the need for entrepreneurial development was first felt and since then substantial amount of research has gone into this sphere. It is a well known fact that entrepreneurs are born and can be made in the sense that the quality can be improved in such a way. In our country where human resources are to be found in plenty, we can identify individuals in all segments of the population, who have the requisite entrepreneurial skills. But it requires to mould them, motivate them and train them through proper Entrepreneurial Development Programmes (EDPs) for undertaking risk bearing ventures. Thus the EDPs became a vital approach for harnessing vast untapped human skills, to channelise them towards accelerating industrialisation in general and growth of small scale sector in particular. It is also observed by several scientists like Mc. Clelland, that with proper training provided to the right kind of persons, entrepreneurship could be developed.

The term entrepreneur has been defined differently by various authors. Most authors have simply given definitions in terms of entrepreneurial functions and others differently. Hence Hoselitz Bert F. mentions that all definitions have at one time or other associated with (1) uncertainty bearing; (2)co-ordination of productive resources: (3) introduction of innovations and (4) provision of capital. Richard Cantillon, the originator of the term 'entrepreneur' defined entrepreneur as one who buys factors of production at certain prices and sells his products at uncertain prices, thereby bearing a non-insurable risk. Peter Drucker, the well known management expert, defines an entrepreneur as one who always searches for change, responds to it and exploits it as an opportunity. Entrepreneurs innovate and innovation is a specific instrument of entrepreneurship. According to one definition, that has emerged very recently, entrepreneur is a person who senses opportunity for economic gain in the socio-economic spheres around him and initiate activity leading to production, through interaction of men and materials. Entrepreneurship involves taking risk or making investment under conditions of uncertainties and to innovate, plan and take decisions so as to increase production.

Small scale industries which are the means to increase the prosperity of individuals and also to develop the economy of the country, are developed with the help of the industrial promotional agencies and some of them are coming up on their own by the entrepreneurs. Realising the importance of development of entrepreneurship. Government and financial institutions are trying their best to develop the entrepreneurship and thereby permit and assist the new small scale industries which come up in the process. Merely providing financial and other help cannot lead to development unless achievement motivation is high through a proper training programme Training plays a vital role in initiating and accelerating the process of entrepreneurship development. Development of environment in which entrepreneurial activities can flourish is also an important factor. The spirit of entrepreneurship can be nurtured to some extent by an appropriate pattern of education and training programmes.

In India, under Mc. Clelland's guidance, the National Institute of Small Industry Extension Training, Hyderabad, conducted the first experimental programme for development of entrepreneurship in the mid sixties. The State Bank of India conducted its first entrepreneurial development programme in 1978.

Role of non-financial institutions

To set up an industry, the ability to meet the margin money requirements of the small scale project itself is not enough, but entrepreneurial characteristics have to be identified and reinforced in the entrepreneur of that industry. Thus the important characteristics of the entrepreneur, namely, psychological, economic, social and managerial characteristics, have to be learnt, understood and digested by every prospective entrepreneur. For the success of an industry the man behind the project is more important than its fixed assets, the entrepreneur has to be trained well. Industrial and Technical Consultancy Organisation Limited (ITCO), a subsidiary of Industrial Development Bank of India, having professional experience in counselling the entrepreneurs, identifying the project ideas and preparing detailed project reports, is conducting entrepreneurial development programmes. Andhra Pradesh Industrial and Technical Consultancy Organisation is conducting entrepreneurial development programmes since 1979. It has so far conducted 25 programmes in different parts of Andhra Pradesh (sponsored by I.D.B.I., I.F.C.I., I.C.I.C.I.. and Department of Science and Technology, Government of India, New Delhi) with the following objectives:

(1) assess and develop the entrepreneurial abilities required to become a successful industrialist.
(2) dissemination of information about the formalities and procedures to be followed for starting small scale industires.
(3) dissemination of information about the facilities and incentives available for starting small scale industries.
(4) guidance in selecting projects suitable for different trainees based on their investment, educational background, technical expertise, proficiency, aptitude, etc.
(5) acting as a liaison between the various officers/organisations engaged in industrial promotional activities in the State and the trainees for availing necessary facilities available in their projects.
(6) dissemination of information on how to plan and manage a small scale industry successfully.

These programmes cover all educated unemployed youth —

(1) having strong desire to set up industry and having confidence of its success.
(2) with basic technical qualification or S.S.C. with 5 years industrial expenence.
(3) in the age group of 21 to 35 years.
(4) able to invest required share capital (25 per cent of project cost) to the selected project.
(5) with independent thinking and decision making status
(6) claiming nativity of the district.

This course is intended to give working knowledge of industrial promotional agencies, project report preparation, general management of small scale industries, besides transforming the prospective entrepreneurs by achievement motivation. These programmes include the academic inputs necessary for the purpose. Experienced guest faculty will advise the prospective entrepreneurs by providing them a practical insight into the various problems and also enlightening with additional information.

Role of commercial banks

The State Bank of India conducted its first EDP in 1978 mainly in backward districts with the basic objective of creating awareness of self-employment through setting up of small scale industries by providing training to prospective entrepreneurs. As per the bank's model, the EDPs consist of one month's intensive training in behavioural science, management aspects, field training and during this period the entire cost of boarding and lodging is borne by the Bank SBI's EDPs consist of three distinct phases —

(1) Initiation phase : for creating awareness about entrepreneurial opportunities.
(2) Development phase: through training programmes in developing motivation and managerial skills.
(3) Support phase: counselling, encouragement and infrastructural support for establishing and running an enterprise.

Entrepreneur scheme : The Bank's entrepreneur scheme was evolved in 1967 for providing financial assistance to technically qualified or trained, experienced entrepreneurs to the extent of 100 per cent if necessary to set up small scale units of their own. The target group is the technocrats who lack the financial capability to meet the normal margins stipulated by the bank under its 'Liberalised Scheme'.

Equity fund scheme : Every entrepreneur setting up an industry has to contribute a minimum of his money (i.e., 25 per cent of the project cost) called equity. If an entrepreneur is not able to meet this share of equity, the bank may assist him by way of interest free loan, payable over a long period.

Role of development banks: Various development banks in India have introduced 'special capital' and 'seed capital' schemes to provide equity type of assistance to new and technically skilled entrepreneurs who lack financial resources of their own. In view of the long term benefits to the society from the emergence of a new class of entrepreneurs, development banks have been actively involved in the entrepreneurship development programmes and in establishing a set of institutions which identify and train potential entrepreneurs. The promotional activities like carrying out industrial potential surveys, identification of potential entrepreneurs, conducting entrepreneurship development programmes and providing technical consultancy services have contributed in a significant manner to the process of industrialisation and effective utilisation of institutional finance by industry. In recent years, development banks have initiated special measures for the creation of specialised institutions for the training of entrepreneurs and research in this field

In spite of some success being achieved so far, by these entrepreneurship development programmes in the sphere of development of small scale industries, yet, we are not able to attract the class of people for whom these incentives are actually meant for. In fact, the entrepre-

neurship development and small industry development have become the obverse and reverse of the same coin. It is felt that we should go to the rural and underdeveloped areas to induce people to set up small industries in their areas.

... to give a greater practical insight into the various aspects of industrial organisation, planning, management and development etc. □

Suggestions (Contd. from page 4)

1. Entrepreneurs should be provided with more and more information on various aspects such as selection of product, marketability of the product, design of the product and the alternative product profiles. Market surveys should be conducted in a more intensive manner and information relating to the market feasibility of products has to be provided.
2. There should be suitable organisational arrangements for disseminating information about appropriate technology to the prospective entrepreneurs and the entrepreneurs should be given proper training in the technology to be adopted.
3. Entrepreneurs should be provided full assistance not only in the preparation of project reports but also in meeting the financial requirements.
4. The EDPs should aim at providing adequate information to the entrepreneurs in respect of rules and regulations connected with setting up of new industrial ventures and organisations to be contacted.
5. For successful entrepreneurship development, it is necessary that emphasis is placed on adequate follow up support.
6. As selection of the participants for the EDP's is an important factor, the methods of selection suggested by the expert committees should be rigidly followed and the selection process may be reviewed at periodical intervals by the concerned experts.
7. As the training inputs can notably influence the quality of entrepreneurs, care should be taken to design the course and the EDP should have a specific and well defined target group.
8. Sponsoring of Technical Consultancy Organisations (TCOs) for providing necessary facilities and guidance to entrepreneurs is also an important suggestion which deserves serious attention.
9. Preparation of a directory of industrial, technical and management experts so as to enable the entrepreneurs to take their help in the formulation and implementation of the projects especially where TCOs are not ready to make their services, guidance and consulting, etc. available to them.
10. Intensive efforts should be made to impart more technical training to the entrepreneur trainees in the entrepreneurship development programmes (EDPs). Greater emphasis should be laid on the practical aspects during these training programmes.
11. Efforts aimed at establishing a greater degree of cooperation, liaison, closer working relationships and a better understanding between the various financial, technical institutions and organisations and the different departments of the Central and State Governments engaged in entrepreneurship development activities should be intensified.

need to be attended to immediately. It is an accepted fact that mounting deficit financing is definitely causing inflationary pressures on the economy. It has been completely established that the economy of shortages built up the economy of black marketing.

We also see that there are certain procedures and norms, certain taxation policies which are rather cumbersome – they cause delays and delays cause obstructions to development. In addition, certain loopholes in the law cause corruption. Therefore, the entire effort of the new Government will be to simplify the rules and norms. Whether it is taxation law, licensing policy, or norms of administration, it is will be simplified in such a manner that the process will become less cumbersome. Very ofter, whenever laws are made, experts sit and find loopholes, to discover how they can be exploited. We would like to avoid that. In this connection firm steps will be taken to check the black money economy. We would like to unearth that money. We would like to destroy that money.

Then there is the area of wasteful expenditure. I do not want to quantify everything right now. But I was trying to see the expenditure incurred for various festivals inside and outside the country—Apna Utsav and others—and I find that there was no need for some of this expenditure. I am not anti-art or puritanical, but ultimately the priorities are to be fixed. Therefore, all wasteful expenditure will have to be curbed. For instance, the expenditure on VIP security is very huge. But sometimes psychological factors also help. It happens with the prices. Sometimes a scare is created and you find a lot of fluctuation in the prices.

Austerity

On the very first day we announced that we are going to have a price committee and we will see to it that concrete and firm measures are taken to see that the prices are controlled and they are brought down. It was found that while in many places there was a lot of release of sugar by wholesalers, in some places sugar prices were coming down. These are the psychological factors which also help. Therefore a climate of austerity will be created, a climate where wasteful expenditure is avoided.

It will also be seen that no psychological atmosphere is created inside the country and outside, that will generate doubts in those who want to invest about the inner strength of our economy. I do not want to create an impression that our economy has become insolvent and that we are going down the drain. Far from that – we are fully confident that we will reduce the external debt burdens. We are confident that investments will grow. Our approach will be balanced and pragmatic. □

(P.I.B.)

Cement industry – the current scene

Dr. Mohammad Talha
&
Faheem Usman Siddiqui

Under the formula suggested by the Bureau of Industrial costs and price, old cement plants upto 75 per cent capacity utilisation and new ones with 60 per cent capacity utilisation will be acquired by the government at the levy price. The rest will be sold at market price. The author says, this proposal, if implemented, will give a shot in the arm to the industry.

THE CEMENT INDUSTRY IS TODAY faced with a peculiar problem—it is saddled with a surplus stock of about four million tonnes, a far cry from the era of acute shortage in this crucial commodity. Even though the situation is encouraging in terms of production, the recent decontrol on prices and distribution has created more problems for the industry. Free flow of cement in the market has resulted in low price realisation. This has posed a new challenge for lowering production costs, productive use of labour and adoption of new processes of technology which are continuously being developed the worldover.

The sea-change in this sector has come about following the partial decontrol in 1982 which triggered off a remarkable bout of investment by large industries. Some of them entered the cement industry for the first time. The post-partial decontrol period witnessed an unprecedented growth in terms of capacity, optimisation of production and, productivity and, more importantly, upgradation and adoption of modem technology. The capacity has more than doubled since then from 29 million tonnes to over 54 million tonnes.

Even though cement production surpassed the target in 1986-87, it slumped during the last financial year (1987-88), mainly on account of power shortage. The final production figures for the year show a shortfall of about three million tonnes in production against the revised target. The target of cement production during 1987-88 was lowered from 44 million tonnes to 42.5 million tonnes, against which a production of the order of 39.5 million tonnes had been achieved. In 1986-87 the cement production was about 36.59 million tonnes against the target of 36.5 million tonnes.

Table 1 shows the production of cement in India between 1950-51 and 1988-89.

Table 1

Production of cement in India (1950-51 to 1988-89)

Year	*Installed Capacity (Million TPA)*	*Production (million tonnes)*	*Capacity Utilisation %*
1950-51	3 3	2 7	82
1960-61	9.4	7 9	84
1970-71	17.4	14 5	83
1980-81	27 0	18 1	67
1981-82	29 2	21 1	72
1982-83	33 5	23.7	70
1983-84	36 9	27 1	73
1984-85	42.8	30 2	71
1985-86	45.5	33.1	73
1986-87	50 0	36 4	73
1987-88	54 0	39 3	73
1988-89*	60 0	49 0	82

Source Compiled from various journal of Economic Trends.
* : Estimated

Data set out in table 1 reveal that the production of cement was 3.3 million tonnes per annum in 1950-51. The growth in installed capacity and production could be gauged from the figures of capacity and production presented in the above table. Installed capacity registered an annual growth rate of 41.5 per cent during 1950 to 1988 while the growth in production was 36.6 per cent during same period. During 1980 to 1988 the growth in installed capacity and production declined to 6.8 per cent and 4 per cent respectively. The capacity utilisation has steadily declined over the years from over 90 per cent in the fifties to 85 to 90 per cent in sixties. The seventies and eighties have witnessed a capacity utilisation in the range of 70 per cent to 75 per cent, which has not only led to increase in the cost of production, but also to a substantial idling of capital. capable otherwise, of being put to production use.

Pattern of consumption

India is one of the top eleven producers of cement in the world. In sharp contrast, to the production, the per capita consumption of cement in the country is one of the lowest. The high production factor in the case of India may explain this disparity. The per capita consumption in India is very low at 46 Kg. in the U.K., 330 Kg. in the U.S., 380 Kg. in France, 460 Kg. in the U.S.S.R. and 560 Kg. in Japan. The world per capita average is nearly 200 Kg. Thus, the industry says. there is a lot of scope for increasing cement consumption.

Table 2 shows the per capita consumption of cement in India between 1970 and 1988.

Table No. 2

Per capita consumption of cement in India between 1970 and 1988.

Year	*Per capita consumption (Kg)*
1970	25
1971	26
1972	27
1973	25
1974	25
1975	25
1976	28
1977	29
1978	33
1979	33
1980	29
1981	30
1982	33
1983	34
1984	40
1985	44
1986	46
1987	48
1988	46

Sources · Times of India Directory and Year Book, Bombay, 1984, p 157
(i) · Cement, Bombay, April-June, 1988, p 3

It is evident from the table that the per capita consumption during 1970 to 1988 exhibited an unimpressive growth of nearly 3 per cent per annum with slight improvement when cement began to be imported from abroad. The apparent consumption registered an annual compound growth rate of 4.8 per cent during the same period and production has grown at the rate of 4 per cent per annum. The higher growth in apparent consumption could be attributed to the imports of cement and absence of export since 1977-78.

Though demand for cement has been growing continuosly, its production has actually declined from 19.56 million tonnes in 1978 to 18.10 million tonnes in 1979 and further to 17.75 million tonnes in 1980 inspite of the fact that installed capacity rose from 21.68 million tonnes to 24.4 million tonnes during the same period. Though the programme envisaged that the expansion of capacity would be enough to take care of the demand, production has been lagging behind due to low capacity utilisation. This is more so because the manufacturing unit started with huge funds for expansion and the consumer has to pay exhorbitant prices.

Table No. 3 shows the demand for cement in India during the years 1980-81 to 1988-89.

Table No. 3

Demand of cement in India (1980-81 to 1987-88)

Years	*Demand (Million Tonnes)*
1980-81	28.0
1981-82	30 2
1982-83	32.6
1983-84	35 6
1984-85	37 0
1985-86	39 4
1986-87	41 4
1987-88	44 5

Sources (i) Commerce, Bombay, January 3-9, 1987, p 11
(ii) Cement, Bombay, Oct - Dec , 1987, p 36

Data set out in table No. 3 reveal that the demand of cement in India has increased from 28 million tonnes in 1980-81 to 44.5 million tonnes in 1987-88, indicating an overall increase of nearly 60 per cent. The demand for cement by the end of Ninth Plan obviously, the need for the creation of capacity in the cement industry becomes a matter of priority for policy makers, if dependence on imports and domestic shortage of cement are to be avoided.

Future prospects

Recent changes in the Government policy have brought about perceptible improvement in the infrastructural facilities. Power position has considerably eased and transportation of coal has been smoother than before. Thus, capacity utilisation in the cement plant has risen from a low level it had sunk to in 1980. The Bureau of Industrial costs and price has come out with some pragmatic proposals The comprehensive package proposed by the committee aims at gradual release of market force in respect of both distribution and prices. The ultimate goal is total decontrol in the next five to six years when domestic production is likely to be stable enough to meet the full demand at a capacity utilisation of 85 per cent on the basis of an installed capacity of 84.5 million tonnes. The package does away with the three tier price system and introduced duel pricing as in sugar. Under the formula suggested cement plants up to 75 per cent of capacity utilisation for old and 60 per cent for new units will be acquired by the Government at the levy price while rest of the output may be sold at market price. The proposal, implemented, will give a shot in the arm to the industry. On one hand, there will be definite incentive for the industry to increase production while; on the other hand there will be greater availability of cement to the general consumer. More significantly, the psychology of cement shortage will be undone to a good measure. If the distribution net work is tightened and streamlined, a vast improvement may be expected in the supply position of cement. Thus there are reasons for optimism in the cement industry and good prospective future to look forward to. □

Irrigation – constraints and efficiency measures

B.L. Patil

There is an imperative need for judicious use of water because of its limited availability. This calls for better awareness. The author calls for an integrated approach and suggests tapping of sub-soil sources and suitable cropping pattern.

IN THE STRATEGY OF AGRICULTURAL Development, water is an important and limiting input, the ultimate source of water is rainfall. The rainfall in most part of India is concentrated in the monsoon months of June to September. There is a high degree of uncertainty in the time of commencement and recedence and its distribution during these four months. In addition, there are very wide inter-year fluctuations. Therefore, if farming is dependent on rainfall, one crop, at the most, can be grown in a year.

Irrigation has been recognised and accepted since long as the prime input for the development of agriculture in our country. To increase the crop yields, a number of various agricultural inputs such as better seeds (HYV), porper fertilizers,improved management and requisition of water are necessary. Proper development and management of water, however, are of over-riding importance since the success and efficiency of other inputs are dependent on quantity, quality and timing of water supply, the methods of its use and adequacy of control over it.

Irrigation imparts uniformity and stability to the resource base and opens up a wide range of cropping options. The stable crop environment provided by irrigation allows better expression and perception of comparative advantages. This facilitates the selection of the most profitable crops.

Irrigation projects are subject to much criticism as they are failing to fulfil the demand for adequate water required by the farms. Canal water being the cheapest source of irrigation, farmers tend to over use it.

The ever increasing demand for irrigation water has to be met by more efficient use of the available supplies rather than increasing the actual supply. Inadequate release of water, faulty water distribution system, huge conveyance losses and traditional water management systems are some of the problems that limit better utilization of irrigation facilities.

At present canal water rates are highly subsidised an the cost of lifting ground-water is costlier, so farmer prefer the use of surface water even though ground wate is available. Moreover, the farmers have not yet recog nised fully, water as a scarce resource. This results i over use and wastage of surface water and also results i drainage problem.

Lot of water will be wasted due to low conveyanc efficiency of unlined distributaries and field channel past studies estimated this wastage between 30-60%.

Farmers even now practice the flooding metnod (irrigation even though developed irrigation methods ar recommended such as border strip, furrow methods etc This results in wastage of water and carries in the way (tail end farmers of canal, getting their due square in th surface irrigation system.

Waterlogging and salinity is being caused due t several factors such as over and extensive irrigatio leading to rise in water table, seepage of water fro adjoining high lands, seepage of water through canal inadequate natural drainage and surface drainage. Ver few farmers are aware of the problem of soil deterioratio due to extravagant use of water.

In the light of all the above problems and drawback present day agriculture would demand a high degree (efficiency, in water management. Hence following mea sures are need to be brought into effect immediately, the are as follows :

1. The increasing demand for water in light of th limited supply has to be met through more efficien integrated and conjuctive use of rain water, surface wat and ground water. Cropping pattern is an important fact that has to be suitably evolved for achieving it.

2. On farm development by way of providing flo control structures like diversion boxes drop pits, etc should be done for more efficient water control in tl field.

3. Farmers are needed to be given proper training c the problems of soil deterioration due to excessive use (irrigation water.

4. Water distribution policy which aims at an opt mum production for a given quantity of water should l adopted.

5. Water should be distributed on per acre hour basi Water hours per acre should be worked in consultati

(Contd. on page 2

Blending growth with social justice

Dr. S.L. Ghosal

Dwelling on vital problems like ever-increasing population and demand for food and shelter, the author here discusses as to how we can ensure national growth with social justice. The foremost task is to improve our agricultural performance. To achieve this goal, the author feels, it is imperative to take steps like raising income rather than just self-sufficiency in food, providing the small and marginal farmer access to low-cost technology and imposing a "floor for size of holding to avoid further fragmentation".

ROFESSOR KEITH GRIFFIN, A WIDELY recog-ised development specialist, based in Oxford, in his ent study "World hunger and the World Economy" ites that the world has a problem of hunger but not a oblem of food. The real problem, he elaborates, is not a ortage of available food but a shortage of available ome among disadvantaged groups. For the world as a ole never in history has the physical supply of food per pita been greater than in the past decade; yet, radoxically, reduction in hunger is not occuring. nbarrassingly, this perversity is best shown in India, cording to him. The problem is with people — the lationship of particular groups of people to feed, not od itself, he suggests. Such people are small farmers, ndless labourers, dryland farmers and tradition bound hermen and artisans. Whether such people can com-and food depends on the country's laws, institutions and stoms.

India's population will increase by nearly 90 million ople, during the eighth plan, each staking additional aims on the nation's food supply. More than half of ese will join rural families who depend directly for their elihood on agriculture. Competition for land will crease. The rural labour market already characterised low wages, strong seasonality and a high degree of security will need to provide more and more jobs in the ming years. The average size of an operational holding the country today has come down to 1.82 hectares each lding further split into 5 or 6 scattered parcels, making the effective size of an operational farm unit to 0.3 to 0.4 hectare each. This is going to assume a more serious dimension if we continue with the present policy of permitting unbridled sub-Division of holdings. The problem is all the more serious in the entire eastern region of the country where the S.R. Sen committee report has even suggested a blanket ban on further fragmentation.

A formidable task

Improving India's agricultural performance during the Eighth Plan period, ensuring growth with social justice, against this difficult background, will be a formidable task. In his J.V. Reddy memorial lecture on November 29, 1988, Shri C. Subramanian, former Union Minister of Agriculture, has observed, "The achievement of objectives regarding opening up maxium employment potential or minimising poverty and motivating farmers to maximise production will not be possible in an atmosphere of pervasive and steep inequalities in ownership of assests and control over resources, absentee farming, and payment of wages below the subsistence level to agricultural labourers." We have been witnessing this phenomenon all these years even though the origin of the present national strategy of achieving goal with social justice can perhaps be traced back as far as the pre-independence era, with the introduction of community development programme. The twin objectives of our agricultural policies during the last couple of decades have been to achieve self sufficiency in food production and to increase farm incomes in an equitable manner. While significant progress has been made in the first direction, floods and drought notwithstanding, the second objective is still to be achieved. The problem that planners and policy makers need to grapple with in the Eighth Plan, if not sooner, is how our farm·policies could be made subservient to the needs of not only increasing the physical output of selected agricultural produce but also to increase the income of the farmers.

The percentage of marginal farmers has in the recent past gone up from 50.6 to 56.5 and that of the landless labourers from 16.7 to 24.9 per cent. If this section of rural population goes on increasing without commensurate increase in the prices of their produce, as is the case now, per worker income will continue to shrink while it is rising at a rapid rate in the organised sector. Indeed, on the one hand the emoluments in the industrial sector and services sector are rising steeply, thereby raising the general price

structure, on the other the income in the agricultural sector in stagnating, if not getting relatively depressed, resulting in further widening the gulf between the agricultural sector and other sectors.

Among the documented results of greater agricultural output in many countries have been labour–displacing farm machinery, small farmer oriented lift irrigation ruined by lowered water table from powerful large-landower pumps and, most importantly, support prices for food grains raised to the detriment of both wage earners and deficit farmers who purchase grain in the market. Indeed, there have been reports from some states that agricultural labourers are at great risk of sinking to poverty and hunger where growth of farm production is fastest.

Dryland agriculture

In this connection it is of significant relevance that, under Indian situation, development of dryland agriculture, to which the country's research system is deeply committed, is inescapable for national food security and poverty alleviation and also for correcting regional and social imbalances and disparities. The thrust of agricultural development in the eighth Plan has to be on dryland farming to bring down the income disparities between the farmers having irrigation facilities and those without.

The future food production has to come from more difficult areas which are economically and ecologically at a disadvantage. Our ability to overcome weather aberration through measures like contingent cropping, positioning of critical inputs, professional extension service etc. will continue to have direct and positive bearing on the overall performance on the food front in the comming years. The chronically drought-prone areas of the country, comprising 615 blocks of 90 districts 13 States, covered by the Drought Prone Area Programme, will demand more serious attention from researchers to do something more. Rain-fed farming under other extreme situation, where annual rainfall may be as high as 2.000 mm, will merit equal attention and will continue to pose a challenge to both management and technology.

New tasks

Farm scientists and technologists, spread over the length and breadth of the country with impressive achievements to their credit, may have to gear themselves up for the new tasks that lie ahead. What can be done even with available technology in small farms of 1 hectare has been shown by Japan, Taiwan and South Korea. In Japan a 1 hectare farm uses 3 or 4 times more labour as well as capital and produces 4 or 5 times more yield than a farm of the same size in Orissa, for example. If the productivity of this small farm could be increased by a half of its counterpart in Japan a real revolution will ensure and unemployment and underemployment problem on the unorganised farm sector significantly met. Research is opening up new possibilities of improving dramatically the return per unit area of both land and labour in small farms. A new approach by the Indian council of Agricultural Research, to land and water management, promises to boost yields of 5 staple crops of country's semi-arid regions – sorghum, mellet, chick-pea, pigenpea and groundnut – generating an extra income Rs. 5000/- per acre. Experience of Gujarat, Andhra and other State suggest that incomes in the dryland farming can be increased and farmers given a measure of protection against risk of drought by encouraging them to inter crop their mustard, groundnut and millets with fuelwood trees. The real challenge is to explore methods of improving yields based on locally available materials at costs that the subsistence farmers can afford. Fortunately the scope to meet the challenge is vast. Genetic modification of crops to stand moisture stress, biological nitrogen fixation, alleviation of environmental stress, multiple and inter-cropping, multi-tier cropping, fertilizer placement at the root zone, crop-saving techniques under severe drought, alternate cropping to suit different weather conditions, use of by products and reduction of waste are some areas where technologies are either available or are being generated. What is needed is an effective forward looking extension service to spread these technologies far and wide. The Training and Visit system of extension must transcend its present selected-crop-oriented approach and be treated as means to an end which is to optimise the utilisation of resources of the farmers and consequently improve the quality of life of the rural poor. The extension approach should be geared to solving farmers' all land-based problems without, however, going back to the earlier multipurpose approach encumbered by largely redundant logistical supply functions.

It is time the researchers, extension workers and anti-poverty campaigners joined hands to reach millions of small and marginal farmers, provide them access to low-cost and non-nonetury technology and guide them concentrating on making the most skilful use of their land and labour for augmenting their produce and income.

Conclusion

Raising income rather than only self-sufficiency in food; renting and hiring of implements, pumps, and power tillers on a custom basis rather than ownership; labour-cum-capital intensive farming rather than primarily labour intensive farming; step bv step increase to high value cropping rather than traditional cropping; introduction of a reward and penalty package to promote sound banking and discourage wilful default of loan repayment; development of transport facilities and medium industries in secondary markets and other growth centres in the country side; facilitating lease of land by samll farmers; and imposition of a floor for size of holdings to avoid further fragmentation are the key elements to an approach aimed at income generation on small farms, recommended by the economists. They merit serious attention of planners of the Eighth Plan. All these may not bring revolutionary change in the short run but would nevertheless introduce powerful forces of technological and economic change which over a period of time will bring about significant social and structural changes in the desired direction of raising small farmers' income. We must not forget that with a gradual decline in the size of our farm holdings, the efficiency of small farm management holds the key to the progress of Indian agriculture. □

Bonded labour in a tribal district: A study

Bibhuti B. Mohapatra

This is a study carried out by the author regarding bonded labour in Orissa with special reference to Phulbani — the most backward district of the State — according to the author. The author identifies indebtedness as the predominant cause of this bondage which according to him is the result of low wage and distressed selling of their produce to money-lenders. A greater degree of sincerity of purpose is the need of the hour to solve the problem— the author feels.

BONDED LABOUR IS THE OUTGROWTH of circumstances of the family and the poor economic conditions of the nation. In a teleological sense, bonded labour is the outcome of two interacting parallelograms of forces – internal and external. The internal force is the rural penuriousness and stagnation of the rural economy. The external force is nothing but the policies, politics and parameters of action of the administration. The system of bonded labour is a cruel and rapacious system in which the workers are worst off with the lack of rights, dignity and individuality and as such, are oppressed by the masters. The bonded labourers are paid wages below the prevailing rate or even without any wages other than the minimum subsistence-food. A bonded labour is the one who pledges himself against an advance (Loan). Such a person is required to work for his creditor against nominal wage till the creditor declares that the loan is fully repaid. He loses the right to sell his labour or the product of his labour in the open market at market value.

Various recent investigations and studies reveal that the laws and programmes related to the abolition of the system of bonded labour suffer from various leakages and lack of proper implementation. Many anti-poverty and anti-exploitation programmes have remained on paper in the absence of political will, and therefore, the process in this area remains tardy. Corruption in the identification, release and rehabilitation programmes is rampant. This, in turn, leads to further exploitation of the poor bonded workers. There is a lack of specific guidelines and suitable methodology for the identification of bonded labour. There is still a disagreement whether the short-term and seasonal bondages should be brought also under the bonded labour. The time lag between the release and identification of bonded labourer is generally found to be too much with no subsistence allowance for the intervening period. Subsequently, the freed labourers are forced to roll back into the bondage trap.

The magnitude

The system of bonded labour is most commonly prevalent in many work areas of India, like agricultural fields, quarries, brick-kilns, dam-sites, mines, etc., where extreme scarcity and acute poverty persist. Different sources give different estimates of bonded labour. Prior to the passing of Bonded Labour System (Abolition) Act, 1976 no proper efforts were made for the estimation of the number of bonded labour. It was only after the Act became operative that the Gandhi Peace Foundation (GPF), New Delhi, organized a team to make a survey and estimate the number of bonded labourers. The Foundation selected 10 States to highlight the enormity of the bonded labour problem. It grossly estimated total number of bonded labourers in these States at 26,17,000. The National Sample Survey Organisation (NSSO) in its 32nd round estimated the size of bonded labour at 4.5 lakhs. The difference between the estimates of the GPF and that the NSSO is enormous. Apparently this is due to the difference in the definition of bondage followed by the two organizations. As per the latest reports received by the Ministry of Programme Implementation from the State Governments, the total number of bonded labourers identified and freed since the inception of the Scheme, was 2,20,340 as on 31.7.1987, out of which 1,88,602 have been rehabilitated, leaving a balance of 31,738 bonded labourers to be resettled in life. Moreover, a target for the rehabilitation of 18,202 bonded labourers has been set by the Programme Implementation Ministry for nine states during the current year.

It is, however, worthwhile to note that the total number of bonded labourers in the country is likely to be even higher than the GPF estimates. This Foundation estimated the number of bonded labourers at 26.17 lakhs by covering only 10 States and therefore it leaves 15 other states of the country like Haryana, Punjab, Mizoram, Himachal Pradesh, etc. Even the States like Assam and Jammu & Kashmir, which were not included in the GPF study, have shown the existence of bonded labour. In Haryana, a batch of 570 bonded labourers was claimed to have been freed from the bondage of five brick-

kiln owners by the Haryana Bhatta Mazdoor Union on March 30, 1988. Out of these 100 labourers are still awaiting rehabilitation or opportunity to leave for their homes in Uttar Pradesh. Various other instances of bonded labour are noticed in the Northern India. This shows that the actual number of bonded labour is many times more than the estimated one. Ironically, it is very odd to note that our government and administration have never conceded the existence of bonded labour in India. The former Chief Justice of India, Mr. P.N. Bhagwati, remarked, "One major handicap which impedes the identification of bonded labour is the reluctance of the administration to admit the existence of bonded labour even where it is prevalent."

The etiology

In India there has been a multiplicity of factors responsible for the origin and development of this evil practice. These factors can be broadly placed under two heads viz. (a) factors giving rise to the supply of bonded labour and (b) factors creating demand for bonded labour.

There is a paradoxical co-existence of modern amenities and bonded labour that is found in India. However, population growth, poverty, unemployment, scarcity and economic development are said to be some of the basic factors that determine the magnitude of bonded labour in a developing country like India. After 1951, population in the country grew alarmingly at a compound annual growth rate of 2.15 per cent for the next 30 years (between 1951 and 1981). The total population in 1981 was 684 millions which will be 855 millions in 1991. This unprecedented boom in population has resulted in more illiterate and poor people than at the time of Independence In fact, there is a growing disparity between the income and living standards of rural and those of urban population. Almost sixty per cent of the rural families are living in abject poverty, and the remaining ones are also relatively poor with negligible living facilities. The influx of our rural population towards the large cities and the inability of the urban sector to absorb the largely unskilled rural migrants have bred the bonded labour in quarries, at brick-kilns, on dam-sites, etc.

The demand for bonded labour depends upon the wages and also upon its productivity. Bonded labourers are paid low wages, and therefore, the owners prefer to give loan to the workers and keep them under their clutches, till the loan with interest is repaid. Apart from the wages, owners take mainly the productivity into account. Bonded labour is highly productive in the sense that the workers are forced to work for 10 to 16 hours a day It is easily amenable to changing conditions when compared to organised labour through trade unions. Thus the prevalance of bonded labour can be rationally explained because the owners exploit the situation of surplus labour in their regions by offering to the hungry masses a kind of economic shelter by ruthlessly exploiting their weakest social position and, therefore, earn huge profits.

The right to own private property leads to the existence of a tendency of exploitation among the private employers. This, in turn, makes the government machinery and different legislative measures ineffective in curbing the problem of bonded labour.

Bonded labour in Orissa

In Orissa, the system of bonded labour known as 'Gothi', has been generally manifested among the tribals and lower caste people. The origin of debt bondage could be traced to the history of the princely states in the early nineteenth century. It was essentially a form of exploitation of the landless tribals and semi-tribal groups by the unscrupulous money-lenders. The exploitative revenue policy of the British Government also enmeshed the pauperized tribals into bondage. The non-tribal immigration in the tribal belt led to the alienation of tribal lands by them Abject poverty and miserable economic condition impelled the peasants to borrow from the money-lenders and landlords. The British government took inadequate steps for the amelioration of the grievances of the debtors. Rather strong military actions were taken to suppress the tribal uprisings and revolts which occasionally occurred

Imposition of heavy taxation, system of bethi and begari stagnation of agriculture, exploitation of the peasants were the common socio-economic features during British regime in Orissa.

In Koraput, debt slavery known as Khambari System, existed due to ignorance and impoverished conditions of the hill people Heavy expenses on account of social ceremonies and illness made the tribals to fall in the hands of money-lenders

In Kalahandi district, the incidence of poverty is the highest among scheduled tribes and scheduled castes. Deprived of a fair price for their labour the tribals are usually exploited by the Sahukars. In Junagarh block of Kalahandi, there were instances of girls being purchased by the rich landlords. It has been found that abject poverty and social disabilities were responsible for sale of children Recurring drought conditions have played havoc in Kalahandi resulting in failure of crops, food shortage and indebtedness.

In the district of Phulbani, poverty is widespread. High concentration of tribal population, lack of employment opportunities, poverty and exploitation are the hard realities of the tribals of the district. Tribals are mostly Kondhs who predominantly depend on agriculture. The merchants of plain generally supply the daily required articles, the prices of which are often collected in kinds at the time of harvest. The produce offered by the tribals were found disproportionate for the price charged by the merchants. This led to the credit transaction which made the tribals over-burdened with debts to the merchants.

Traditionally, the system of bonded labour was practised mostly in the Southern districts - Koraput, Kalahandi, Ganjam and Phulbani. Worsening economic condition due to extreme form of economic prostration amongst the people are the main reasons for the outgrowth of this pernicious system. It has been estimated by the government of Orissa that approximately 4 to 6 per cent of the agricultural labourers of this State which is

about a little more than one lakh, are under debt bondage. The programme of Economic Rehabilitation of Rural Poor (E.R.R.P.) is launched to cover the rehabilitation of bonded labourers in the state of Orissa.

Few and sporadic studies have been made on bonded labour fomenting only the surface of the problem so far.

The study

Though there are various types of forced labour prevalent in the State of Orissa, debt bondage in agricultural sector seems to be the most wide-spread phenomenon. Hence, the study is confined to agricultural sector of the most backward district of Orissa, Phulbani. The present study covers the remotely situated tribal villages in the Balliguda sub-division and peopled by Kondh community.

The study is conducted to assess the household and economic conditions of the bonded labourers that have been rehabilitated by the time of the present study. The study also examines the impact of development schemes on the socio-economic life of the rehabilitated bonded labourers.

Keeping the objectives of the study in view, field stud has been taken up in 15 villages spread in four blocks Balliguda Sub-Division, namely, G. Udyagiri, Raikia, Tumuribandh and Kotgarh. The study includes 75 out of the 533 rehabilitated bonded labour families for the year 1983-84 and 1984-85, as ascertained from the official records and it covered more than 14 per cent of the total number rehabilitated. The sample households were selected randomly and were interviewed in person with the help of a questionnaire with regard to their socio-economic conditions such as their family composition, occupation pattern, level of literacy, age-composition, caste structure, consumption pattern, etc. The information collected from the rehabilitated families are classified through various tables followed by their analysis.

The study revealed that the socio-economic backwardness of the tribal people is a cumulative result of their prevailing customs, their exploitation by the money-lenders and isolation from the outside world. The demographic composition of the area under study revealed that the percentage of Scheduled Tribes and Scheduled Castes population combined reaches a figure of 81 in Tumuribandh Block in comparison to 75.65 in G. Udayagiri. 75.33 in Kotgarh and 73.97 in Raikia. The grim realities of economic constraints of Phulbani, have been revealed in the form of low percentage of cultivable area and irrigation facilities, lack of infra-structural facilities, occupational immobility, poverty and backwardness. A family consisting of five memebrs is gauged among most of the sample families with three dependent children. It forms more than 30 per cent of the sample households. An in-depth study reveals that 19 Scheduled Tribe households out of 75 families under study are found to have old aged dependents whereas 57 households (76 per cent) of the sample families have two earning members.

The deplorable economic conditions of the sample households find revealed expression when we explore the grim fact that 40 per cent of the sample households possess livestock of meagre market value ; 41 per cent have ordinary agricultural implements and less than 30 per cent possess two rooms to live in. In spite of the incentives provided by Tribal Welfare Department of the Government, the percentage of children among the sample households that have enrolled in the school remains 54.66 with a high degree of drop-outs. Most of the sample families maintain their lives through collection of minor forest produce and depending on agriculture. The average food consumed by the members of the sample household is far from satisfactory. Visit to hats serve manifold purpose to them like buying and selling of goods, contact for loan and marriage negotiations. The study further unfolds that lavish expenses made for social functions are the crucial reasons for the bondage for most of the sample households. More than 49 per cent of the sample families are subjected to the pitiable predicament of bondage between 1 to 2 years. More than 46 per cent of the sample households are found to have been supplied with land for cultivation under the rehabilitation programmes. The study further reveals that most of the households had been enmeshed in the whirlpool of bondage under the yoke of indebtedness. Indebtedness, on the other hand, is the product of low wage receipts and distressed selling of their produce to the money-lenders.

Conclusion

It is hoped that the recent involvement of voluntary agencies in identification, realease and rehabilitation of bonded labour would lead to improvement in the quality of rehabilitation programmes i.e. IRDP, NREP, RLEGP etc.. A greater degree of sincerity of purpose among the political leaders and bureaucrates, coupled with the cooperation of the common populace is the need of the hour for the structural transition of our societies in order to solve the problems of bonded labour in India. □

(Contd. from page 21)

with agronomists and based on regional research studies on crop water requirements.

6. Water rates should be reviewed for upward revision to generate adequate funds for maintenance of works and also to inculcate a sense of recognition among the farmers that water is a scarce resource which requires careful management and application for optimising production, water rates should be preferably on volumetric basis.

7. Farmers who wish to raise heavily irrigated crops and long duration crops should be encouraged through institutional finance to augment their irrigation resource base by undertaking investment in their own ground water means which would tap the secondary seepage from surface irrigation.

8. Farmers cultivating frequently irrigated crops requiring light watering like fruits and vegetables should install water economizing sprinklers and drippers to enhance yields and their quality besides reducing the use of irrigation water □

Supply response of commercial crops: A case study

Dr. Rudraraju Krishna

DURING THE PERIOD 1969-70 to 1983-84 there was a sea-change in the cropped area under the major commercial crops viz., Cotton, Virginia tobacco and Chillies, in Guntur district of Andhra Pradesh The cropped area under cotton increased from 11.4 thousand hectares in 1969-70 to 140.8 thousand hectares in 1983-84. On the contrary, the area under Virginia tobacco declined from 32.8 thousand hectares to 10.3 thousand hectares and Chillies cropped area from 58.1 thousand hectares to 12.5 thousand hectares during the above period.

A fundamental argument relating to commodity prices is that the farmers respond to price increases by raising production, and conversely that production will not increase unless prices are remunerative. However, the existing literature on the nature of supply response to price is not conclusive one.

In view of the drastic changes in the cropped area under the commercial crops in the district and the divergent findings observed by the researchers relating to supply response in general, an attempt is made to find out the supply response of cotton, virginia tobacco and chillies to price changes in Guntur district during the period 1969-70 to 1983-84.

Cotton

It can be observed from Table 1, that the changes in the cropped area when compared with their corresponding current years prices reveal that in some years both the area and the price have increased. In the remaining years the price decrease is accompanied by area increase and vice versa. Therefore the comparison of the changes in current year's area with changes in current year's price shows a confusing picture. But, comparison of current year's change in the cropped area with lagged price (Price of the corresponding previous year) clears such confusion. It reveals the influence of prices on the acreage changes. It may be observed that the increase in the lagged prices is accompanied by an increase in the area under the crop and vice versa, continuously for a period of eight years from 1974-75 to 1981-82.

However, the area under cotton increased in 1982-83 and 1983-84 in spite of decrease in lagged prices. The reason for this inconsistency is quite obvious. It may be noticed from the table that the decrease in lagged prices in 1982-83 and 1983-84 was moderate, accounting for about five per cent only from the preceeding year's prices. Moreover, this moderate decline in the prices was from the highest price of Rs. 536 per quintal in 1980-81 and the corresponding support price fixed by the Government was only Rs. 453. As such, the lagged prices of Rs. 507 and Rs. 479 in the said two years were still higher than the above support price. In view of these facts, the area under cotton in 1982-83 and 1983-84 rose high in spite of a moderate decline in lagged price.

It is evident, therefore, that the changes in the area under cotton were having direct relationship with the changes in the lagged prices. In other words, the increase in the price in a year was accompanied by increase in the area under cotton in the immediately succeeding crop year and vice-versa. Eventhough the changes were disproportional, the direct relationship between them clearly established that the supply response of cotton is sensitive to price changes.

Tobacco

It can be noticed from Table 2, that the changes in the area under virginia tobacco did not exhibit any definite pattern of relationship with the current year's price changes. However, the comparison of changes in the area with the changes in lagged prices reveals the influence of prices on the acreage under the crop from the second half of the seventies.

The area under virginia tobacco declined continuously during the period 1972-73 to 1975-76 irrespective of the changes in the prices. Moreover, the area declined heavily to 8.9 thousand hectares in 1974-75 from 24 thousand hectares in 1973-74, in spite of the fact that the farm harvest prices moved marginally between Rs. 501 and Rs. 526 per quintal in the preceeding four years. However, the changes in the area under virginia tobacco from 1976-77 onwards exhibited a direct relationship with the changes in the lagged prices. The fall in prices in a particular year was followed by a fall in the cropped area in the immediately succeeding year and vice versa.

It is evident, therefore, that supply response of virginia tobacco to price changes was not sensitive upto 1975-76. But, it had a definite pattern of response to the price changes from 1976-77 onwards, even though the response was disproportional. The contradictory tendencies during the period 1969-70 to 1983-84 are not beyond comprehension due to the following facts.

Tobacco in Guntur district, the cultivation of which was started in 1930, became a traditional commercial

[illegible] virginia tobacco with the requisite quality characteristics suitable for export demand. Being mainly export oriented crop, virginia tobacco became comparatively remunerative than the other commercial crops. As a result, its cultivation extended to the vast stretches of cultivable land in the district.

The growers did not face any serious problems upto 1970 to dispose their virginia tobacco, except occasionally in a few years of glut and slump in export demand. Therefore, the price changes had little effect on the supply response until 1970. However, from 1970 onwards the demand for virginia tobacco grown in black soils declined due to change in the quality preferences by the overseas buyers. Consequantly, the disposal of virginia tobacco grown in the district became a tough job for the growers year by year. During this period of crisis, cultivation of hybrid varieties of cotton gained momentum in the district. The soils in which tobacco was cultivated proved equally suitable for cotton crop. The farmers were convinced that cotton is also remunerative commercial crop to be adopted in place of tobacco. Therefore, the area under tobacco declined continuously, but moderately upto 1973-74 and heavily in 1974-75. Majority of the farmers shifted to the cultivation of cotton crop. As down to a low level of seven thousand hectares by 1975-76, the effect of price changes on the area in the succeeding years is clearly perceptible from 1976-77. The area under the crop and hence the supply became sensitive to the price changes.

Chillies

It may be noticed from Table 3, that the area under chillies responded to the lagged price changes upto 1972-73. The heavy decline in the cropped area in 1972-73 to 29.2 thousand hectares from 57.7 thousand hectares in 1971-72, was also attributed to unfavourable seasonal conditions. As such, in spite of a marginal decline in prices, the area in 1973-74 increased substntially due to favourable seasonal conditions. But, from 1974-75 onwards the cropped area under chillies declined continuously upto 1981-82 irrespective of price changes. Thereafter, the area under chillies responded to the changes in prices.

As mentioned earlier, cultivation of superior cotton gained momentum in the district during seventies and proved more remunerative than other crops. Moreover, cotton crop could be cultivated in unirrigated lands also under rainfed conditions like chillies. Therefore, the farmers who were cultivating chilly crop gradually

Table 1

Area and price (farm harvest prices) changes of cotton in Guntur district during 1969-70 to 1983-84

Area '000 Hectares
Price Rupees per Quintal of Kapas

Year	*Area under cotton*	*Percentage change in area over the previous year*	*Current year price*	*Percentage change in current year price over the previous year*	*Lagged price (one year)*	*Percentage change in lagged price*	*Support prices announced by the Government*
1969-70	11 4	—	NA	—	—	—	—
1970-71	9 5	(-) 16.7	NA	—	—	—	—
1971-72	23.0	(+) 142 1	NA	—	—	—	—
1972-73	26 0	(+) 13.0	262	—	—	—	221
1973-74	54.8	(+) 110 8	476	(+) 81 7	262	—	265
1974-75	75 6	(+) 38 0	321	(-) 32.6	476	(+) 81 7	304
1975-76	51 0	(-) 32 5	431	(+) 34 3	321	(-) 32 6	310
1976-77	78.9	(+) 54.7	507	(+) 17 6	431	(+) 34.3	NA
1977-78	86 2	(+) 9.3	438	(-) 13 6	507	(+) 17 6	380
1978-79	55.3	(-) 35 8	452	(+) 3.2	438	(-) 13.6	380
1979-80	66 9	(+) 21.0	483	(+) 6.9	452	(+) 3 2	410
1980-81	89.7	(+) 34 1	536	(+) 11 0	483	(+) 6.9	453
1981-82	116 5	(+) 30 0	507	(-) 5 4	536	(+) 11 0	NA
1982-83	120 8	(+) 3.7	479	(-) 5 5	507	(-) 5.4	540
1983-84	140 8	(+) 16 6	609	(+) 27 1	479	(-) 5.5	547·

NA — Not available, n a. – Not announced,
(+) indicates increase; (-) indicates decrease

Sources. Compiled from:
1. Season & Crop Reports of Andhra Pradesh, 1969-70 to 1983-84, Bureau of Economics & Statistics, Government of Andhra Pradesh, Hyderabad.
2. Farm (Harvest) Prices of Principal Crops in India, 1965-66–1970-71, 1970-71–1974-75 and 1974-75–1979-80, Directorate of Economics & Statistics, Ministry of Agriculture & Irrigation, Govt of India, New Delhi
3. Handbook of Statistics, Guntur District (1976-77, 1977-78 and 1983-84). District Planning Office, Guntur
4. Records of the District Planning Office, Guntur District, Guntur
5. Records of the Andhra Pradesh Cotton Association, Guntur

[illegible]

Area : '000 Hectares
Price : Rupees per Quintal

Year	Area under Tobacco	Percentage change in area over the previous year	Current year price	Percentage change in current year price over the previous year	Lagged price (one year)	Percentage change in lagged price
1969-70	32.8	—	—	—	—	—
1970-71	27.6	(–) 15.9	501	—	—	—
1971-72	29.3	(+) 6.2	503	(+) 0 4	501	—
1972-73	28 9	(–) 1 4	533	(+) 6 0	503	(+) 0 4
1973-74	24.0	(–) 16.9	526	(–) 1 3	533	(+) 6 0
1974-75	8.9	(–) 62.9	734	(+) 39 5	526	(–) 1.3
1975-76	7.0	(–) 21.3	678	(–) 7 6	734	(+) 39 5
1976-77	6.0	(–) 14.3	777	(+) 14 6	678	(–) 7 6
1977-78	8.5	(+) 41 7	407	(–) 47 6	777	(+) 14.6
1978-79	8.3	(–) 2 4	NA	—	407	(–) 47 6
1979-80	6.0	(–) 27.7	521	—	NA	—
1980-81	6.6	(+) 10 0	916	(+) 75.8	521	—
1981-82	9.3	(+) 40.9	1,302	(+) 42 1	916	(+) 75 8
1982-83	15.8	(+) 69.9	1,031	(–) 20 8	1,302	(+) 42 1
1983-84	10.3	(–) 34.8	880	(–) 14 6	1,031	(–) 20 8

NA – Not available ; (+) indicates increase , (–) indicates decrease

Sources : Compiled from :

1. Season & Crop Reports of Andhra Pradesh, 1969-70 to 1983-84, Bureau of Economics & Statistics, Government of Andhra Pradesh, Hyderabad
2. Farm (Harvest) Prices of Principal Crops in India, 1965-66–1970-71 , 1970-71–1974-75 and 1974-75–1979-80, Directorate of Economics & Statistics, Ministry of Agriculture & Irrigation, Govt of India, New Delhi.
3. Handbook of Statistics, Guntur District (1976-77, 1977-78 and 1983-84), District Planning Office, Guntur.
4. Records of the District Planning Office, Guntur District, Guntur.

Table 3 : Area and price (farm harvest prices) changes of chillies (dry) in Guntur district during 1969-70 to 1983-84

Area '000 Hectares
Price Rupees per Quintal

Year	Area under chillies	Percentage change in area over the previous year	Current year price	Percentage change in current year price over the previous year	Lagged price (one year)	Percentage change in lagged price
1968-69	—	—	155	—	—	—
1969-70	58 1	—	453	(+) 192 3	155	—
1970-71	62.4	(+) 7.4	372	(–) 17.9	453	(+) 192 3
1971-72	57.7	(–) 7.5	349	(–) 6 2	372	(–) 17 9
1972-73	29 2	(–) 49 4	341	(–) 2 3	349	(–) 6 2
1973-74	39.1	(+) 33.9	441	(+) 29.3	341	(–) 2.3
1974-75	36 7	(–) 6.1	673	(+) 52 6	441	(+) 29 3
1975-76	35.8	(–) 3 0	587	(–) 12.8	673	(+) 52 6
1976-77	32 8	(–) 8 4	689	(+) 17.4	587	(–) 12 8
1977-78	18.5	(–) 43 6	602	(–) 12 6	689	(+) 17 4
1978-79	16 7	(–) 9.7	553	(–) 8 1	602	(–) 12 6
1979-80	16.6	(–) 0.6	558	(+) 0.9	553	(–) 8 1
1980-81	14.9	(–) 10.2	667	(+) 19 5	558	(+) 0 9
1981-82	13.7	(–) 8 1	828	(+) 24 1	667	(+) 19 5
1982-83	14.7	(+) 7.3	617	(–) 25 5	828	(+) 24 1
1983-84	12.5	(–) 15 0	762	(+) 23.5	617	(–) 25.5

(+) indicates increase ; (–) indicates decrease

Sources · Compiled from :

1. Season & Crop Reports of Andhra Pradesh, 1969-70 to 1983-84, Bureau of Economics & Statistics, Government of Andhra Pradesh, Hyderabad
2. Farm (Harvest) Prices of Principal Crops in India, 1965-66–1970-71 , 1970-71–1974-75 and 1974-75–1979-80, Directorate of Economics & Statistics, Ministry of Agriculture & Irrigation, Govt of India, New Delhi.
3. Handbook of Statistics, Guntur District (1976-77, 1977-78 and 1983-84), District Planning Office, Guntur.
4. Records of the District Planning Office, Guntur District. Guntur.

(Contd. on page 33)

Agriculture in Punjab : New challenges

Dr. Sukhdev Singh

In this article the author attempts a study of the areas which can further enhance the development of agriculture in Punjab. Removal of soil and water problems; diversification of cropping pattern and development of agro-based industries are the areas which call for greater attention for improving the quality of life in rural homes, the author feels.

PUNJAB LACKS NATURAL RESOURCES like minerals and forests and agriculture forms the kingpin of the State economy. Nearly 58 per cent of its population is directly dependent upon agriculture which contributes about 38 per cent of the State domestic product. Though it is one of the smaller States covering only 1.53 per cent of the geographical area and 2.1 per cent of the cultivated area of the country, yet its contribution to Central Pool was 64.9 per cent of rice and 61.5 per cent of wheat in 1986-87. This year Punjab has contributed 65 per cent of wheat to the Central Pool.

There exists a wide gap in the average yield of major crops in different districts of Punjab which is evident from Table 1 showing district-wise average yield. The range of average yield per hectare is 2200 kg (Amritsar) to 3927 kg (Ludhiana) in case of rice 2574 kg (Hoshiarpur) to 4176 kg (Ludhiana) in case of wheat. Similar gap exists in other crops as well. A comparison of National Demonstration plot yields with the district average yields (Table 2) also shows a wide gap between potential and actual yields of various crops.

The yields of irrigated area are certainly higher than those of un-irrigated areas. Efforts need to be made to create irrigation facilities for the rainfed areas. Further thrust should, therefore, be on rainfed areas and water management. To bridge the gap in crop yields, the work to reclaim alkaline and saline lands needs to be accelerated.

Although the adoption of technology in quantitative terms is quite high yet there is scope to improve in terms of timeliness and precision. The efficient management of soil, water and other resources should be undertaken to increase crop productivity. For this purpose, the existing production technology need to be tailored so as to suit the conditions of different areas.

Table 1

Average Yield (kg/hectare) 1987-88

	Wheat	*Rice*	*Maize*	*Cotton*
Hoshiarpur	2574	2286	1252	298
Jalandhar	3707	3198	1950	298
Ludhiana	4176	3927	2115	373
Ferozepur	3606	3102	1246	427
Amritsar	3614	2200	2133	70
Gurdaspur	3150	2205	1350	—
Kapurthala	3621	3114	1300	—
Bathinda	3020	3271	1035	490
Patiala	3818	3643	1747	313
Sangrur	4012	3806	2170	443
Ropar	2968	3297	1236	298
Faridkot	3346	3304	2422	621

Table 2

Yield gap in different crops under the National Demonstration Project (1987-88)

District	*Crop*	*Yield in quintals/hectares* N D *average*	*District average*
Bathinda	Paddy	71.50	46.83
	Ameracan Cotton	27 25	15.09
	Desi Cotton	30.10	8.91
	Wheat	44 62	30.20
	Raya	14.91	9.75
Ropar	Wheat	48.81	29.68
	Maize	26 11	12.36
	Paddy	70.31	43.96

Source N D. Project Report 1988.

Punjab produces about 8 million tonnes of rice straw. If it is used for power generation, it has potential of 800 MW electricity generation. The present practice of burning the paddy straw pollutes the atmosphere and is harmful to human, animal and plant health. Similarly, dung need to be used for gobar gas and the slurry as farm yard manure rather than preparing dung cakes. Several other plant and animal wastes need to be channelized into productive use.

Amelioration of soil & water problems

Nearly 6.9 lakh hectares of salt affected soils in the State can be made productive by adopting proper

reclamation technology. The present rate of reclaiming about 30,000 hectares of land is rather slow and will take decades to make all the area productive. In certain areas especially in cotton belt, the underground water is blackish and if used without amelioration, results in salt effected soils. The appropriate technology including proper choice of crops, conjuctive use of canal and underground water, use of gypsum, green manuring, etc. needs to be adopted in such areas.

Maintaining ecological balance

The profitability of paddy-wheat rotation has resulted in progressive increase under areas of these crops. This monoculture has resulted in disturbing the ecological balance of the region. The water table in over 70 development blocks of the State has gone down by 1 to 1½ feet per annum during periods of deficient rainfall. New pests and plant diseases have appeared. Malaria, which once had been eradicated, has again appeared in a big way. Besides, there are problems of soil health and deficiency of micro-nutrients e.g. zinc, sulphur manganese, iron, etc. Therefore, there is an urgent need to diversify the cropping pattern by raising other crops such as pulses, oilseeds, vegetables, fruits, dairying etc. Further, the planting of various types of trees for this purpose is essential not only to maintain ecological balance but also to meet the timber and fuel requirements of the State.

Tapping the export potential

Considerable potential exists for the export of durum wheat, basmati rice, potato, fruits, vegetables and flowers. Foreign markets need to be surveyed for exploring the export of these commodities. Durum varieties of wheat have been introduced in Punjab which are suitable for preparing noodles. Similarly area under potatoes can be increased for export of chips. Rice and maize products stand good chance for export market

Sectoral development

Agriculture and industry have a symbiotic relationship. One cannot progress without the other. If one is left behind, imbalance occurs. This has happened in Punjab. Industry has not made as fast a progress as it should have in order to maintain the tempo of progress in agriculture and generating more employment. The agro-based industries have strong linkages both backward and forward. Some industries have more employment potential than others. Punjab needs to be given more share in such industries. The recent expansion of Sugar Industry has proved a grand success.

As a result of progressive agriculture and not so progressive industry, the contribution of the primary sector is higher in relation to secondary and tertiary sectors. The tertiary sector contributes about 35 per cent in the State against the national average of 40 per cent. The seemingly advanced State of Punjab is really backward in the development process.

The following points need to be emphasized in this respect:

A. **Strong Infrastructure: Better roads, electri**fication of trains for quick transportation and construction of over-bridges at vital points could help save many man-hours.

B. Agro-based Industries:

(a) At present, Punjab has about one lakh hectares area under sugarcane. There are 13 sugar mills in Punjab which have a daily crushing capacity equal to 18200 tonnes, produce about 2.25 lakh tonne sof sugar (average of 1986-87 and 1987-88). Of the total cane produced in the State, the sugar mills crush about 33 per cent which is one of the lowest in the country. The internal demand of sugar for the year 1990 is estimated at 5 lakh tonnes and the present sugar production in the State is sufficient to meet only 45% of the demand. To enable the State to be self-sufficient in sugar production, the utilized crushing capacity needs to be enhanced to 40 thousand tonnes daily. In terms of number of mills this would mean 32 mills with a daily capacity of 1250 tonnes each. A better course would be to instal factories of atleast 2500 tonnes each as factories of lower crushing capacity are no longer economical.

(b) Textile mills in cotton growing areas of Bathinda, Faridkot, Ferozepur and Sangrur should be encouraged. There is scope to establish about 35 new textile mills with the capacity to use about 29,000 bales per mill annually with a spindlage of 33,000. Similarly, cotton based cloth mills should be established.

(c) In Punjab, approximately 2,00,000 tonnes of oilseeds are produced. Cotton production is 17,00,000 bales, and rice 54,00,000 tonnes. Of this, 66,000 tonnes of oil from oilseeds (rapeseed-mustard, groundnut and sessamum etc.) 48,000 tonnes of cotton seed oil and 65,000 tonnes of rice bran oil could be obtained. Thus, total availability of oil would be about 1.80 lakh tonnes. In order to process such large quantity of oilseeds, we need to instal new units.

(d) Processing of fruits and vegetables need to be encouraged in order to stabilize their production and help diversification. Export markets also need to be explored. At present about 40 per cent fruits and vegetables are lost due to spoilage, in transit and storage. Therefore, farmers get very low returns, and the consumers have to pay very high prices. Sometimes the producer's share is as low as 25 to 30 per cent of the consumer's price. The situation can be improved through processing and creating demands for processed products. Projects like Pepsi are a step in the right direction and need to be pursued with right earnestness.

(e) Livestock processing industry also needs support with prior motivation of the consumers.

(f) Balanced cattle feed and poultry feed products need to be provided for various types of livestock in order to boost livestock industry

(g) To cope with the increasing plantation of eucalyptus in the State, there is dire necessity of setting up of paper and wood industry in the State.

(Contd. on page 33)

Smoke Exposure and health hazards

Mrs. V. Raji Sugumar

Women folk of the economically weaker sections are constantly exposed to wood smoke while cooking. It is particularly harmful to malnourished women as it increases anaemia. The author suggests choice of fuel and simple remedies.

AIR POLLUTION MAY PRODUCE IN the individuals some ill effects immediately and in some delayed effects. Some studies carried out in India as well as in Western countries reveal that sudden rise of impurities in air with high level of concentration results in high mortality and morbidity conditions, due to disorders of the respiratory system. Other delayed conditions currently occuring due to air pollution are said to be chronic bronchitis, primary lung cancer etc.

The world's worst air pollution problem could be the wood smoke inhaled by poor rural women while cooking. A tonne of particulates from house hold wood stoves may actually lead to more than 500 times the human exposure, than a tonne of particulates from a coal fired power station.

Exposure to wood smoke is particularly harmful for malnourished anaemic women as carbon monoxide an important component of wood smoke increases the effect of anaemia by reducing the Haemoglobin present in the blood. Over a quarter of Indian women in the reproductive age group are anaemic.

The burning of cooking fuel envelops the indoor environment with heavy smoke and women who have to do all the cooking may be daily exposed to more pollutants than even industrial workers in extremely polluted environment on extremely polluted days. Thus women are being affected at every end of the cooking cycle-as fire wood became scarce they have to put in more energy to collect fuel and then they have to face dangers of wood smoke everyday. Reducing indoor air pollution in poor homes is thus a more urgent environmental task today, a subject that should be of concern not only to environmentalists but also health workers. But even as the news of pollution on the home becomes disturbing the trends in general environmental pollution are nothing to be happy about either.

Smoke hazard

The most powerful evidence for the ill effects of wood smoke comes from a survey of a heart disease called col, palmonale in which the right lower chamber of the heart enlarges and fails because of the disorders in the lungs.

Carbon monoxide which is an important component of wood smoke is the colourless and odourless gas which is highly toxic if inhaled in sufficient quantities, Haemoglobin – the oxygen carrying substance in blood has a much greater affinity for carbon monoxide than it has for oxygen-together they form a stable compound Carboxy (HbCo), that decreases the amount of uncombined Haemoglobin available for oxygen transport.

If carboxy level becomes high enough coma and death can occur. It is generally believed that 5% carboxy is the appropriate upper limit for avoiding accute effects in a large population.

The impact on a pregnant malnourished anaemic women with chronic lung disease who cooks in a firewood stove would be the effect on the unborn child.

Formaldehyde is another pollutant in smoke. It causes irritation in the eyes, nose and throat. It is poisonous to tissues in the lungs and has been found to exacerbate skin wounds. It is considered a human carcinogen and there is evidence that aldehides can act synergistically to hasten tumour growth in animals.

Exposure to cigarette smoke during pregnancy and nursing increases the risks to mother and child. The domestic smoke would result in chronic bronchitis. The smoke inside the house is concentrated enough to cause the skin and clothes of the inhabitants to become black with soot. A distressingly high incidence of Acute respiratory infection (ARI) was found and was most important cause of mortality and morbidity among infants below one year age.

Chronic obstructies lung diseases, heart diseases like cor pulmonale, cancer (particularly lung and nasopharyngeal cancer), acute respiratory disease resulting from the decreased ability of the lung to clear themselves and low birth weight of children born to mothers exposed to wood smoke and their increased perinatal mortability and morbidity and therefore, among some of the major effects that can be expected from wood smoke.

There is a general agreement that the health of rural women is significantly worse than that of the rural male population. One of the reasons to explain this phenomenon is smoke exposure.

The famous Khanna study in Punjab shows that there was a higher incidence of cancer, T.B. and pneumonia amongst women, all of which could be related to higher exposures to wood smoke.

Preventive steps

There are several steps that can be taken to cut down the exposure to smoke while cooking and reduce its adverse impact on health. Some of them are usage of better fuels, improved stoves and better ventilation. As far as fuels are concerned, one major option would be to speed up the use of Kerosene and electricity. But the government will be unable to supply electricity in quantities needed for cooking. Moreover most people are too poor to purchase electricity. Kerosene is comparatively cheaper.

Biogas is another fuel which can greatly reduce the health problems caused by wood smoke. This gas is made by controlled combustion of biomass like wood or crop residues in low air conditions. Methanol or Ethanol could also be supplied for cooking. These clean liquid fuels can be made from wood and crops like sugarcane, but because these commodities are in short supply and expensive it is very unlikely that they will ever be used in large quantities for cooking.

Choice of tree species

There are two opinions. Firstly those species of trees that should be planted in social forestry programmes, which gives off, less smoke when burnt. Villagers used barral (Acacia Nilotica), neem, mango and other types of wood. According to them barral was the least smoky and neem the most. While choosing a tree species characteristics like disease resistence, fertilizer requirement and low levels of smoke should be considered as an important quality.

A second major alternative is to increase the use of charcoal. Charcoal is produced by heating wood in the absence of air in underground or other air tight conditions, often for several weeks. Charcoal burns relatively clear at the cooking stage except for potentially high release of carbon monoxide. Because formaldehyde emission from charcoal are low and the eyes do not irritate and do not disturb the cook. Removing gases through a well fitted chimney will be essential if charcoal is to be used as a major fuel for indoor cooking.

The second major solution to the problem is to design stoves that enhance reduction of smoke. A simple chimney can be introduced to release the smoke out of the house, this will lead to increased outdoor air pollution. □

(Contd from page 29)

shifted to cotton cultivation. As a result, the area under chillies did not respond to price changes and continuously declined from 1974-75 onwards.

As the area under chillies came down to a low level in 1981-82, the price changes in the succeding years had a clearly visible impact on the area. The area under the crop and hence the supply responded to the price changes and became sensitive.

Conclusion

A comparative look at the foregoing analysis reveals that except in the initial years, the supply response of cotton was sensitive to price changes during the entire period. On the contrary, virginia tobacco and chillies did not exhibit supply response to price changes for some years, because the farmers were in favour of shifting towards cotton cultivation during those years. However, virginia tobacco supply responded to the price changes from 1976-77 onwards continuously and the chilly crop supply started responding to price changes from 1982-83 onwards. □

(Contd. from page 31)

Diversification of agriculture

In order to diversify agriculture and to reduce over dependence on cereal based cropping system, we need to pay far more attention to the cultivation of vegetables and fruits, darying, poultry farming, bee-keeping, mushroom growing, fish farming and setting up of agro-based industries in rural areas. This would not only help supplement the income of the farmers but would also create more job opportunities for the rural youth.

Improvement in quality of rural life

It has been observed that the gains of green revolution has not been fully utilised for improving the quality of life. Rural homes lack the basic amenities. The farm women are facing hardship for lack of basic amenities in performing household work. It is, therefore, essential that efforts should be made not only to increase production but also to improve the quality of life of rural homes so that gains of increased production can be utilised for uplift of the rural living. □

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BOOK REVIEW

Demographic Change and Levels of Living, Dr. Rathindra Sen (New Delhi, Daya Publishing House, 1989), pp. 157, price Rs. 140

Economic development and economic growth of population in a particular region are intimately connected with the fruits of planned economic endeavours which the people may enjoy. Population in India is increasing by 16 million every year and by the year 2020 A.D., India will become the most populous country in the world. The author, however, forgets to mention that by the second decade of the 21st century, India also would become the second most powerful economic giant of Asia. However, the author has given us a few realistic glimpses of the Indian progress. India (the largest democracy) has made appreciable growth, profits and productivity in various sectors of the economy, especially industry, tehnology (including micro and electronic machinery), manufacturing and mining, agriculture and social over-head capital like education and medical care. Yet large sections of Indian people continue to be poor, e.g., 37 per cent of population in India at present has been still below poverty line. A dismal side of the picture is that development is clustered around a few nuclei. The Employment opportunities are still concentrated in the bigger cities. Black money in Indian economy is a fast-ball game eating into the vitals of planned economy. The amount of black money-one form of corruption-is roughly estimated around Rs. 60,000 crores. It is more than what the Union and State Governments collect by way of direct taxes.

The rational course appears to be to undertake a careful manpower planning. Programming for manpower planning or social infrastructural development involves three major types of problems. First, problems of deciding the scale and the timing of investment so that facilities may be sufficient to sustain economic growth but not wastefully over-developed in anticipation of demand which does not materialise. Second, problems of allocating expenditure between different types of human infrastructural projects. Third, problems of financing human capital investment and managing the public undertakings.

In an article entitled "How to Survive on the Planet Earth", Auredio Peccei, President of the Club of Rome, said that "the metamorphic changes that are transforming human ecology and technology, whose immense power seems to be escaping man, are leading the world on onwards macroscopic economic, political and social disasters; and already we live in a state of emergency."

Next to the pursuit of peace, the greatest challenge to the human family is the race between reasonable standards of living and the present rate of population growth. The race today is being lost in Asian, African and Latin American countries. Politicians and social scientists of both developed and developing countries believe that the problems resulting from *large increase in population can be solved by science* and modern technology, political action and money investment. Food production can be increased, water and air pollution can be reduced, urban deterioration can be corrected, and hopefully even the social problems can be improved-through the application of sophisticated technology implemented by political action and money. All these things can not be completed overnight. It takes a lot time and it is a melancholy observation that time is what the present world does not have.

We are all racing against time. Malthus may well prove to be right; though Alwin Toffler reminds us in his "Third Wave" that new resources in agricultural growth and technological progress in the industrial field would usher in an era of undiminished prosperity. However, the end of the 20th century will pose a central question before India and China Can they avoid the impending catastrophe of "Too many babies and too few bushels of corn ?" The author has rightly concluded: "In nearly all the developing countries and especially in those with predominantly rural population, where agricultural production is based on traditional low-yield technology coupled with high degree of the problems of malnutrition, unemployment and poverty, external aid is essential; at least partial dependence upon the affluent countries will continue for a long time to come." It is in this context that the World Bank will have to play an increasing role in averting the demographic disaster for the Third World.

The distinguished economist, Dr. Rathindra Sen has produced a timely study to alert our economic planners and politicians to connect manpower planning with the general planning and to take measures to achieve a realistically modelled pattern of a faster and a more imaginative growth. For India 6.5 per cent annual growth coupled with a better regional planning are essential, if India is to successfully achieve an economic take off by 1992.

N.M. Khilnani

Padma Shri for Dr. Shashi

Dr. Shyam Singh Shashi, Director, Publications Division, Government of India, figured prominently in the list of Padma Shri awardees, on the occasion of Republic Day this year. A multi-dimensional personality, Dr. Shashi is a prolific writer with four score and more books to his credit. Anthropologist, administrator, journalist and a poet of established repute, his specialised area of research and study is the nomadic tribes of India on whom he has produced works of referential value. Dr. Shashi's pen is equally facile while writing books for children. His epic "Agni Sagar", a monumental work in Hindi has been hailed by critics as a memorable contribution to modern Hindi Poetry. □

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Task force on iron and steel distribution

The Government has decided to appoint a Task Force headed by the Development Commissioner for Iron & Steel to review the guidelines and suggest modifications with regard to the distribution of Iron and Steel. The task force will consist of representatives of the main producers, the Government and the users. The important terms of reference for the Task Force will be to review the concept of priority classification, the systems of demand registration and encourage industrial development in the backward areas, among others. The Task Force has been directed to finish its work in time so that the new Distribution Guidelines could be made operative from the beginning of next financial year.

The situation of supply and demand of several Iron & Steel items has changed over the years and is likely to change further during the VIIIth Plan. Producers as well as the intermediate and final consumers of iron and steel items both in the public and private sectors have been making some suggestions from time to time for modifications of the current Distribution Guidelines. The Government's objective is also to impart dynamism to steel production in the country and at the same time manage effectively the short duration shortages efficiently.

Youth in countryside

More than half of the Indian youth live in villages making rural India a vast storehouse of youth talent which could be utilised for the betterment of villagers. It is in this perspective that the Government initiated the 'Nehru Yuvak Kendra' movement in 1972 for appropriating and consolidating the skills of rural youth for development purposes. The Kendra was conceived as an avenue through which development in real terms could penetrate the age-old strangle-hold of poverty and ignorance in rural areas.

Today the Youth club movement launched by NYKs is spreading fast in the countryside. Inspired by the movement young men and women are organising themselves into youth clubs with the NYKs co-ordinating their activities in every district. At present Yuva Kendras are functioning in 384 districts in the country. The aim of NYKs was to enable the non-student rural youth to become the vanguard of development in rural areas. In furtherance of these objectives, they organise a variety of activities which include – non-formal education, vocational training, social service, preservation and betterment of rural environment, sports and games, recreational and cultural activities etc. These programmes also inculcate leadership quality in the youth. In a developing country, such activities help in grooming the youth in citizenship and social leadership. At present, there are about 50,000 youth clubs in the country.

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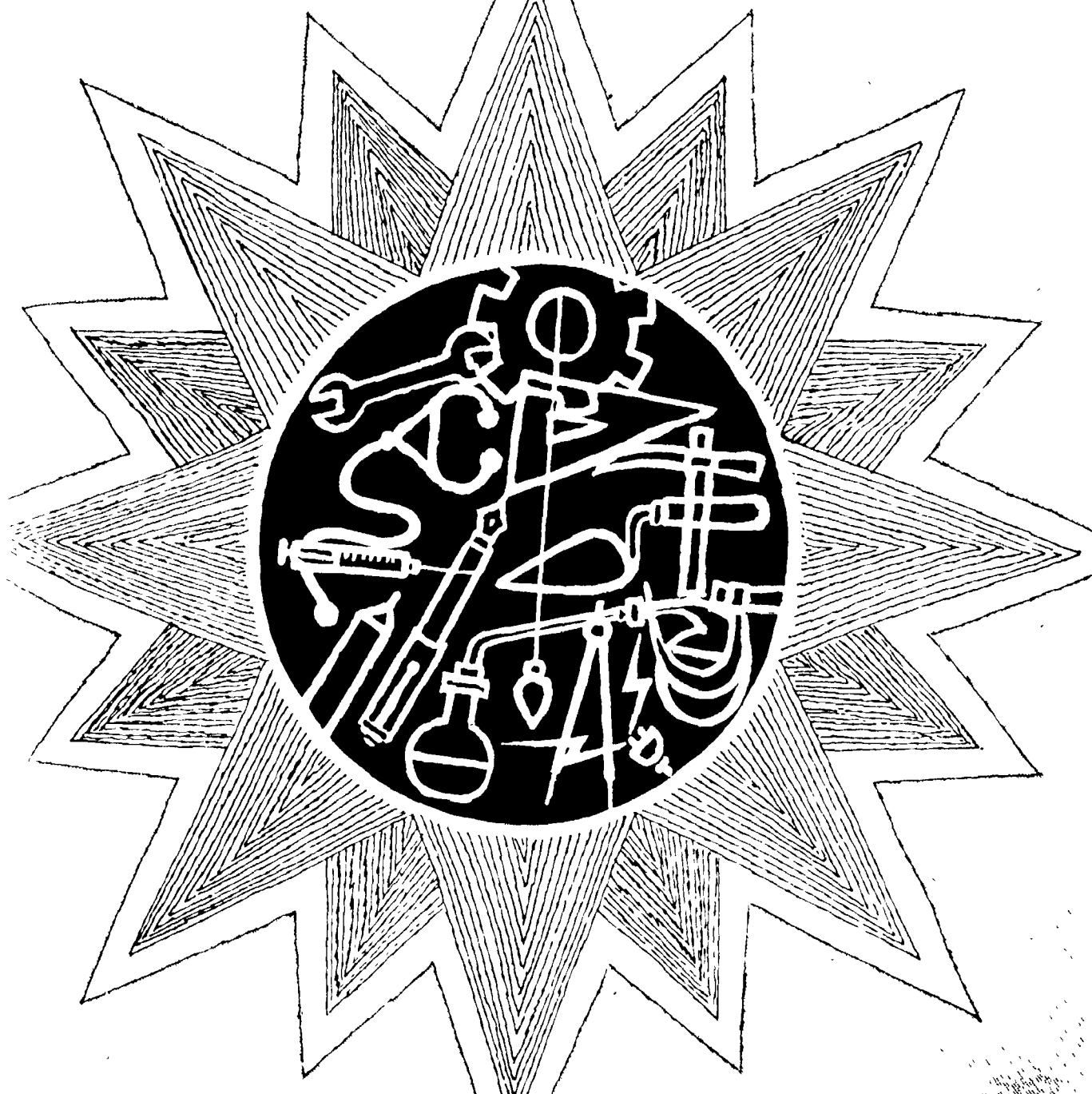
Development Diary

Record leather exports

Leather exports are likely to reach a record level of Rs. 2,100 crores during 1989-90. There are indications that leather exports from India have more than doubled in the past three years. It was about Rs. 933 crores in 1986-87 and a little over Rs. 1608 crores in 1988-89. The Government has asked the Council for Leather Exports to prepare a detailed marketing plan to further consolidate this trend. It should concentrate increasingly on value-added exports and brand marketing in leather especially in the high fashion segments. According to official estimates, there is a potential for achieving a quantum jump in this sector from Rs. 2000 crores to Rs. 10,000 crores within this decade. The share of value-added products in leather exports had increased from about 39% in 1984 to 65% in 1989-90. Seventy eight per cent of leather exports were to the General Currency Area (GCA) and only 22% to the Rupees Payment Areas. Further, India's share in Global imports has also increased to 3.08% from 2.9% in 1977-78 and the early '80s, although the vast untapped potential remains.

Boom in world steel industry

The boom in world steel industry is continuing unabated. Production in 33 countries reporting to the International Iron and Steel Institute reached 245 million tonnes in January-June 1989 against 2367 million tonnes in the corresponding period 1988, an increase of 3.7 per cent.

Japan produced 53.6 million tonnes of steel in the first six months of 1989 and its annual production is likely to touch 106 million tonnes which is good news for the iron ore suppliers. Japan's production in 1989 was higher by 2.1 per cent over the six months of 1988, thus belying the pessimism of steel producers to keep the raw material prices lower.

In Japan the labour negotiations are also due to start and the producers do not want to paint a rosy picture of the industry, despite excellent profits in 1988.

The uptrend in steel production was noticed in EEC also with production rising from 68.6 million tonnes in January/June 1988 to 71.79 million tonnes in January/June, 1989, a rise of 4.6 per cent.

India was a laggard with production rising from 7.1 million tonnes to 7.2 million tonnes, a rise of 1.4 per cent. South Korea boosted production by 14 per cent from 9.2 million tonnes to 10.5 million tonnes while even Taiwan increased production from 4.1 million tonnes to 4.4 million tonnes.

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Solar energy as plant tonic

D.K. Dixit

Solar energy is opening up a great expectation for boosting farm production. Taking a cue from the Soviet experiments, Indian scientists have found favourable response in a few selected crops, specially cotton and ground-nut. The author feels, the benign 'Solar route' may help ushering in a second green revolution.

THERE IS A CRYING NEED TODAY to increase the crop productivity in order to meet the growing demand of food in our country. Higher crop yield can be effected by various means, for example, by the use of fertilizers, irrigation, soil treatment, development of better plant species etc. But all these methods have their own limitations and constraints. Inadequate fertilizer production due to shortage of raw materials in the wake of energy crisis is one such constraint. Hence scientists are exploring possibilities of new methods to augment the plant growth and ensure higher yield.

Experimental studies currently underway at the Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar have pointed to the use of concentrated solar radiation or concentrated sunlight (CSL) for seed treatment. Russians have been pioneers in using CSL for phyto-physiological investigations in their experiments in the Arctic, for treating the seeds before sowing. This 'solar' treatment resulted in enhanced germination, growth, development and crop productivity. Despite favourable results, however, CSL, as it turned out later, often caused burning of the seeds. Now, to obtain similar results, a more refined and innocuous method called 'Pulsed Concentrated Solar Radiation' (PCSR), is used as pre-sowing treatment. Studies have been carried out in the USSR on cotton, wheat, potatoes, carrots, melon, tomatoes, cucumbers, gourd etc., especially cotton.

It was close on the heels of the impressive Russian success that similar work was undertaken by CSMCRI to work on solar seed irradiators under a sponsored project from the Tata Energy Research Institute. The planned work included studies on the effects of PCSR on germination, plant growth and yield for cotton and groundnut. "The experimental investigations conducted so far have clearly revealed that PCSR treatment definitely leads to early germination, better plant growth and early maturation for cotton and groundnut", says Dr. S.D. Gomkale, deputy director of the Institute and the principal investigator of the project.

The solar seed irradiator designed and fabricated by CSMCRI essentially consists of a cylindro-parabolic mirror having focal length of 0.8 metre, an aperture of 1.5 metre and a total area of 2.25 square metre The reflecting surface is made of glass mirror strips of 25 mm width fitted on the metal framework which has the desired parabolic shape. The seeds to be irradiated are kept in glass tubes of 50 mm diameter. These are kept inside a rotating tube holder which is fixed on the framework in such a way that the linear focus falls on the seeds in the glass tubes.

The rotating speed of the tube carrier fixes the pulses per minute at which seeds are irradiated. These speeds can be adjusted through the pulleys and belt drives coupled with an electric motor which is connected to the reduction gearing. This arrangement helps to change the pulse rates. The 'concentration ratio' for the concentrator was found to be between 10 and 13. It is well to remember that three interdependent parameters are involved in PCSR treatment: concentration ratio with respect to normal solar radiation intensity, duration of irradiation and the number of pulses. The object of having a concentrator is to direct the concentrated sun rays on the seeds to be irradiated.

As the seed temperature should not exceed 45 to 50°C, the seeds must be kept rotating or given the influence of 'pulsating radiation'. "By suitable combination, the whole plants, tubes, or plants in culture can also be exposed to such treatment", says Dr. Gomkale and adds

(Contd. on page 34)

Relevance of energy audit

Purnima M. Gupta

Industry can save about 42,000 crore rupees annually by adopting energy conservation methods. The author feels there are some physical and mental blocks to tread this sensible path. She underlines the need for an urgent effort to collect relevant data to evolve suitable norms for energy conservation.

NATIONS ALL OVER THE WORLD are becoming increasingly aware of the necessity to conserve energy. In fact, serious efforts to economise energy use are being combined with the substitution of new forms of non-conventional energy sources in place of conventional sources of energy. Beginning sometime in the 1980s, world production capacity for oil is supposed to be equal or be less than the demand implying that continued upward pressure would be exerted on oil prices and even shortage of some petroleum products may begin. In fact, Iran is now exporting only half the oil it did before the revolution.

The concern for oil conservation has been steadily increasing after the 1973 price rise. According to one estimate, the present economically recoverable oil reserves estimated to be about 96 billion tonnes in the world may last for another 34 years if the present rate of consumption of 2.8 billion tonnes per annum continues. Discovery of new oil reserves may increase the supply to some extent but still not enough to cope with the increase in the rate of consumption of oil concomitant with an increasing pace of industrialisation. The increasing demand for energy associated with economic development of an economy would get distributed between the various sources of energy. The period for which the major energy sources of the world would last if the present rate of consumption continues has been estimated by several organisations. One such organisation is the Petroleum Conservation Research Association (PCRA). The estimates of this organisation are listed in Table-1 below, on the assumption that the present rate of consumption and production would continue.

Table 1

Present World Primary Energy Consumption & Reserves

Energy Source	Rate of Consumption (billion tonnes oil equivalent 1984)	No of years the reserves would last)
Oil	2 80	34
Coal	2 18	280
Gas	1.41	60
Nuclear Energy	0 282	80
Hydro Electricity	0 485	Unlimited

Source Economic Times Nov. 17. 1988

In India, the economically recoverable reserves of oil are estimated to last for only about 17 years if the present rate of oil production of about 30 million tonnes per year continues (as per PCRA estimates). If allowance is made for discovery of new oil sources within the country over the coming years, one would also need to make allowance for the increase in the rate of consumption from the existing level. If both these variables are assumed to remain constant, then the period for which oil reserves are expected to last is really limited and is a matter of concern.

The elasticity coefficient of consumption of commercial energy with respect to GDP between 1960-61 to 1982-83 has been estimated at 1.62. The growth of Indian economy is still energy intensive even though this coefficient has declined to 1.45 in 1986-87. The period for which the various sources of energy would last in India if production would continue at the present level are indicated below at Table 2.

Table 2

India's Present Primary Energy Consumption and Reserves

Energy Source	Rate of Production (Million tonnes oil equivalent 1984)	No. of years the reserves would last)
Oil	30	17
Coal	90	195
Gas	6.52	66
Nuclear Energy	0.3	Beyond 100
Hydro Electricity	4.16	Unlimited

Source Same as in Table 1

Energy audit

Energy is derived from a few basic primary sources—coal, oil, water and atom. These may be transformed into secondary forms such as electricity and gas and then used for generation of energy. Electricity and gas are termed as commercial fuels. Besides, there are non-commercial sources of energy—firewood, cow-dung and vegetable wastes. In India, the consumption of commercial energy has been going up by about 7% per annum.

The consumption of energy would only increase more rapidly with an increase in the rate of economic growth. Given the fact that the sum total of energy from all sources would not increase at the same rate as the overall demand for energy, there is an urgent need to conserve energy. Energy Audit refers to a systematic approach for decision-making in the area of energy management. At a macro-level, it makes an effort to balance the total available energy inputs with its use. In the context of any organisation, its primary objective is to determine methods for reducing energy consumption per unit of output produced. That is, in the context of urgent need of conserving energy, energy audit is one of tools for carrying it though.

Various organisations in India are already conducting Energy Audit. Some other organisations have prepared a scheme for Energy Audit for themselves but have not implemented it. As the need to conserve energy is a well accepted fact, the audit of energy should be conducted within the scheme of Efficiency Audit. An audit of energy use of any organisation is not only prudent from the macro-economic point of view of conserving energy but would also result in substantial reduction in costs and hence an increase in profitability for the enterprise/organisation in which it is carried out. However, energy audit by an enterprise in India has still not been accepted as a necessity. In view of the limited sources of commercial energy, there is a need to make energy audit mandatory for enterprises for which energy accounts for about 10 per cent of the production cost. The Industrial Development Bank of India (IDBI) launched some scheme for energy conservation and disbursed 36 crores of rupees as equivalent finance for energy conservation and another Rs. 16 lakhs as subsidy for undertaking energy audit. According to an estimate by IDBI, industry can reduce its energy consumption by 25 per cent and hence save | 41,925 crores annually. However, industry appears to quite averse to energy audit as energy conservation by enterprise requires a new thinking, determined efforts a operational discipline. Another factor inhibiting ener conservation in India is that the required equipm systems are not available in India. While, a few can imported on OGL, the majority require an import licen

Data for energy aud

The exercise of energy audit would require t collection of basic data relating to energy consumpti for any organisation. This data has to be collected fo sufficiently long period of time, say five years. Af putting this data in a systematic form (graphs or ordina tables), the broad trend in energy use per unit of outp may be observed. An increasing trend in energy co sumption per unit of output would be a cause for concer

Some kind of norms for energy consumption f different processes/units of any organisation would ne to be devised so that the actual consumption can l compared with these norms. These norms can l estimated on the basis of a large number of trial runs f any process and then selecting the figures correspondi to the most efficiently operated trial run as a norm.

As the exercise elaborated above is based on data, th reliability of this data is absolutely essential for th exercise to bear meaningful results.

Conclusio

The efforts so far made for conserving energy are onl marginal. According to the Economic Survey, 1988-89. saving in petroleum products worth about Rs. 450 crore (since 1976) has been achieved by the Petroleum Conser vation Research Association. The Economic Surve further points out that there is enormous potential fo energy conservation through introduction of more fue efficient engines, replacing existing boilers with fuel efficient ones and replacement of oil with coal and othe fuels wherever possible. The Economic Survey als emphasises the role of energy audit for achieving energ conservation.

Clearly, conducting energy audit is a long term exercis which may involve modifications in the infrastructura set-up and reorienting the organisational structure to a new kind of thinking. Involvement of the entire organi sation with the exercise of energy audit and its commit ment to this objective alone can ensure the success o Energy Audit. □

Purnima M. Gupta, Sr Research Officer, Planning Commission, New Delhi.

Revised interest on NSS

Calculation of interest for deposits and balances in National Savings Scheme (NSC) accounts have been revised. From 1st January, interest on deposits under NSC, 1987 will be allowed on a monthly basis from the eleventh day and the end of the month. That interest will be calculated and credited at the end of the year. NSS deposits fetch an interest of 11 per cent. □

Energy consumption in India

Dr (Mrs) Sneh Gupta

The article presents a study of the pattern of consumption of commercial and non-commercial energy in India. Analysing the consumption shares of oil, electricity and coal by the different sectors of the economy, the author pleads for increased use of coal in the house hold and transport sector and electricity in the transport sector to reduce greater dependence on oil and thus save precious foreign exchange. The author also pleads for a check on the indiscriminate use of non-commercial fuels in the rural areas.

ENERGY IS AN ESSENTIAL INPUT for economic development. The evidence world over has shown a positive association between per capita income and per capita energy consumption. In fact, the per capita consumption of energy is now regarded as one of the important indices of economic development. India's per capita consumption of commercial energy (viz., Coal, Petroleum and electricity) is only one-eighth of the world average and will increase with the growth in GDP and improvement in the standard of living of the people. Energy – GDP elasticity or elasticity of energy consumption to economic growth (defined as the ratio of the percentage per year increase of total commercial energy over a period to the per centage per year increase in GDP over the same period) varies sharply in India in different periods as evident from Table 1.

Table 1

Elasticity Coefficients of Energy consumption to GDP in India

Period	1953-54 to 1960-61	1960-61 to 1965-66	1965-66 to 1970-71	1970-71 to 1975-76
Energy/GDP elasticity coefficient	1.95	2 63	1 24	1 86
Period	1953-54 to 1970-71	1953-54 to 1975-76	1960-61 to 1970-71	1960-61 to 1975-76
Energy/GDP elasticity coefficient	1 84	1 84	1.77	1 79

Source Report of the Working Group on Energy Policy, Government of India, Planning Commission, 1979, p 11.

Elasticity of energy consumption

The long term energy consumption – GDP elasticity coefficients, however, show remarkable stability around 1.8. The elasticity coefficient in India is high compared to developed countries where it is lower than unity. The Energy – GDP elasticity coefficient during the period between 1953 to 1970 was 0.76 in case of France, 0.73 in case of Federal Republic of Germany, 0.42 in case of U.K., 0.81 in case of U.S.A., 0.84 in case of U.S.S.R and 1.84 in case of India. This may be due to the fact that there is an element of substitution of non-commercial energy by commercial energy in the Indian economy. The non-commercial fuels are obtained from cow-dung, fuel-wood and agricultural waste. Non-commercial fuels are in the nature of inferior goods and tend to be substituted by commercial fuels as income levels rise. The share of these non-commercial fuels has been diminishing in India.

The elasticity coefficient of electricity to GDP in the Indian Economy during the period 1953 to 1979 was 2.7 which was significantly higher than the elasticity coefficient of energy consumption to GDP. It indicates that the relative share of electricity in total commercial energy consumption has been increasing over time. This shows that electricity has been increasing over time. This shows that electricity has been the preferred form of energy consumption and has consistently registered a higher growth rate than ever oil. The share of electricity in total

commercial energy consumption was 12.6 per cent in 1953-54 and has gone up to 28.7 per cent in 1978-79 while during the same period consumption of oil has gone up from 39.6 to 47.9 per cent and consumption of coal has declined from 47.8 to 23.4 per cent.

Consumption of commercial energy

Table 2

Sectoral shares in Commercial Energy Consumption

	Commercial Energy				(in per cent)
	1953-54	1960-61	1970-71	1979-80	1984-85
Household	21.3	20.6	18.0	15.7	18.2
Agriculture	3.0	3.6	4.6	9.4	9.8
Industry	37.3	39.2	38.7	38.2	36.4
Transport	35.8	33.8	32.7	32.8	31.4
Others	2.8	2.8	6.0	3.9	4.2
	100.0	100.0	100.0	100.0	100.0

Source Report of the Energy Policy Committee, 1979 and the Draft Seventh Five Year Plan (1985-90)

The relative shares of the different sectors in commercial energy consumption has changed gradually over time. Table 2 shows that the largest share of commercial energy is consumed in the industrial sector. The transport sector is the second largest consumer of commercial energy and accounts for about 31 per cent of the commercial energy consumed.

Industries and transport together account for nearly three-fourths of the commercial energy consumption. This share has changed only marginally overtime in the last three decades. Energy consumption in the agriculture sector has registered the sharpest rate of growth and its share has increased from 3 per cent in 1953-54 to about 10 per cent in 1984-85. A part of the increase is due to substition of animate energy and manual power by commercial energy while a part of it may be due to intensification of energy use in agriculture.

Sectoral consumption of different fuels

The relative shares of the different sectors in the consumption of coal, oil and electricity has change drastically over time. Table 3 gives the percentage share of consumption of coal, electricity and oil in differe sectors of the economy.

Table 3

Sector-wise Consumption of different fuels in India

Sector	1960-61			1984-85		
	Oil	Electricity	Coal	Oil	Electricity	Coal
Household	37.7	8.9	8.4	29	11	3
Agriculture	6.2	4.7	-	10	16	—
Industries	16.5	68.7	47.1	5	62	78
Transport	39.6	4.7	42.5	56	2	13
Others	—	13.0	2.0	—	9	6
	100.0	100.0	100.0	100.0	100.0	100.0

Source: Report of the Energy Policy Committee 1979 and the Draft Seventh Five Year Plan.

It is seen that the major use of oil is in the transpo sector. It was 40 per cent in 1960-61 and has increased t 56 per cent in 1984-85. The share of industries ha steeply declined from about 17 per cent in 1960-61 to per cent in 1984-85 and it is the smallest among the maj economic sectors. The oil consumption in the house-hol sector has remained more or less stagnant over the perio and as a consequence, its share has come to about fourth of the total consumption in 1984-85.

The industrial sector has accounted for the large share of electricity consumption and still accounts fo about two-thirds of the electricity consumption. Th share of agriculture has increased at a rapid rate and present, nearly one and a half times the electricit consumed in the household sector is consumed in th agriculture sector. The share of transport sector ha declined.

The major use of coal is in the industrial sector. Th share of coal consumption in the industrial sector ha increased tremendously over the period. It was 47 pe cent in 1960-61 and it increased to 78 per cent in 198 85. The share of transport sector in coal consumption ha been drastically reduced from 42 per cent in 1960-61 t 13 per cent in 1984-85.

At present, only two-thirds of Indian oil comes fro domestic production; one-third comes from import Over the past 38 years, there has been an over sevent eight-fold increase in the bill for oil imports, whic jumped from Rs. 52 crores in 1950 to a staggerin Rs. 4083 crores in 1987-88. This Rs. 4083 crores approximately one-fifth of India's total import bill. an had to be met at the expense of other essential import Therefore, a major challenge is to increase the use of co in the household and the transport sector and of electricit in the transport sector in order to reduce the heav dependence of these sectors on oil and to save our foreig exchange reserves.

Non-commercial energ

One of the important characteristics of energy co sumption in India is that a part of the total energ consumption is accounted for by non-commercial source Fire-wood, agricultural waste and animal-dung a commonly referred to as non-commercial forms of energ in India. At all India level, non-commercial forms in India. At all India level, non-commercial energ consumption was 67.6 per cent of the total energ consumption of 186 million tonnes of coal replacment 1953-54. It declined to 43.5 per cent of the total energ consumption of 447 million tonnes coal replaceme during 1975-76. Thus, although non-commercial fuel declining as a percentage of the total consumption, it sti constitutes a significant part of the total energy consum tion at all India level. In absolute terms, it has increase from around 126 million tonnes of coal replaceme (MTCR) in 1953 to 250 MTCR in 1980.

Animal dung and fuel wood

Animal dung forms 15 per cent of the total energy consumption in the rural sector. Out of the total estimated production of 324 million tonnes of animal dung (air-dry), about 73 million tonnes have been estimated to be burnt for energy purposes which is more than the total fertiliser consumed in agricultural production in India. If the animal dung was used as fertiliser, food production could have been augmented substantially.

Fire-wood is the most important source of non-commercial fuel in India. Firewood is obtained not only from forests but also from trees which exist outside the forests. The data collected in the 28th Round National Sample Survey indicates that about 22 per cent of the total consumption of fire-wood is obtained from private lands and gardens and from trees around houses.

India has a total forest area of about 75 million hectares which forms about 23 per cent of the total geographical area of the country. Though it is generally believed that the forests are getting denuded at a fast rate, the records of land use do not indicate any shrinkage of the area under forests in the last twenty five years. Not all the area under forests is in use. Of the total area under forests of 75 million hectares, 45.6 million hectares (60 per cent) are in use and another 14.8 million hectares (20 per cent) are potentially exploitable, and the rest unexploitable. Most of the unemploitable areas are in the Himalayan States, the North-Eastern region and the Andaman and Nicobar Islands.

The total availability of fuel wood according to the Report of the Fuel Wood Committee (1982) is at present about 50 million tonnes, which the Committee has estimated would only meet less than half of the actual requirements. Thus, the Committee has concluded that if the present trend continues, the fuel wood for cooking will become the greater constraint than the availability of food itself.

Agricultural wastes

The amount of agricultural waste would depend on the extent of agricultural production. Based on the available estimates, the total agricultural waste could be around 200 million tonnes in 1975-76, the actual consumption as fuel might be about 40 tonnes. It is difficult to estimate the share of the agricultural waste that would be normally used as fuel. But the steady increase in the agricultural production can be expected to steadily increase the total quantity of agricultural waste available and a substantial part of it can be used as a source of energy. It is however, seen that wherever agricultural waste arises in a sizeable quantity at a place where there is a use for it as a porcess fuel, the waste is invariably used e.g., the use of bagasse in sugar Khandsari and Jaggery industries.

Thus, the indiscriminate use of non-commercial fuels in leading to an energy crisis in the rural areas. The needs to be tackled with a sense of urgency.

Progress during Five Year Plans

During the Sixth Plan, major initiatives were taken to develop new and renewable sources of energy. The Commission on Additional sources of Energy was established in 1981, and the Department of Non-Conventional Energy Sources in 1982, both at the Central level. The main focus has been on research and development, demonstration and the setting up of pilot projects in areas where technology had the potential to become commercially viable During the Sixth Plan period the proposed outlay on developing new and renewable sources of energy was Rs. 100 crores, the actual expenditure during this period was Rs. 161.7 crores The expenditure has been incurred on setting up biogas units, biomass research centres, solar thermal systems, improved chullahs and on the solar photovoltaics and wind energy programmes. An outlay of Rs. 412.35 crores has been provided for these programmes during the Seventh Plan period.

Major emphasis has been given to develop biogas units in the Sixth as well as in the Seventh Plan as out of the total expenditure incurred on these programmes, 50 per cent of it has been allocated to setting up bio-gas units in each Sixth as well as in the Seventh Five Year Plans.

Under the National Project for Bio-gas Development, over 10.5 lakhs bio-gas plants have been set up so far in the country. Annual generation of biogas from these plants is estimated to be equivalent to about 37.1 lakh tonnes of fuel wood valued at Rs. 148.5 crores. It is estimated that there are about 15 million house-holds with the requisite number of cattle which can set up family-size biogas plants.

An Indian rural energy policy which is planned on the basis of small-scale family size (60 cft per day biogas plants costing about Rs. 2500/- each) cannot help the really poor families. This is because no such family is naive enough to accumulate its total income for over one and half years to buy one bio-gas plant and therefore has no option other than surviving on non-commercial energy source – firewood, dungcakes and agricultural wastes. Apart from this, only some 10 to 15 per cent of rural families possess 3 to 4 cattle necessary to provide the dung requirements of these plants Thus only the rural rich and not the rural poor will benefit from a policy based on spreading the use of family-size biogas plants. Moreover, the need to own 3 to 4 cattle to operate it will prevent extension of the programme to a significant proportion of the population. Therefore, even if there is a considerable increase in the number of these plants, it is unlikely that they will make a major impact on the rural energy crisis in India. □

Dr. (Mrs) Sneh Gupta, Lecturer in Economics, Govt D G College, Dansa, Rajasthan.

Bigger role for Village and small industries

Mahendra Jhamb

The author says, the small and traditional sector was denied a place under the Sun. It was neglected by the authorities since it chose not to make loud noises, the way organised sectors did. The wheel has now turned a full circle and the present step is a good augury.

IN LINE WITH THE DECLARED intentions of the National Front Government the process of re-orientation of development strategy in respect of the industrial sector has started. The Union Government has decided to set up a new department for small scale and village industries

The setting up of a separate department is indeed the first step towards revamping the existing lukewarm support for the promotion of village and small scale industries (VSI). It, inter-alia, envisages better planning, closer coordination, effective monitoring and quicker evaluation of felt needs of VSI sector.

The creation of a full-fledged department, within a few weeks of the assumption of office by the new Government, symbolises the sincerity of administration in implementation of its commitment of generating more job opportunities, especially in the rural areas. Given adequate incentives and suitable infrastructure support, the sector is capable of offering gainful employment to millions of needy and underprivileged sections of our society.

It is indeed unfortunate that despite the high employment generation potential of small, traditional and decentralised industries, the sector received practically step-motherly treatment from the authorities. Over the period, the plan allocation for the blessed sector came down from a respectable level of 3.8 per cent during the 2nd Plan period to a mere 1.5 per cent in the 7th Plan Additionally, while the VSI sector takes pride in contributing 50% of gross industrial production, its share in the total bank credit to the industrial sector is reckoned a only 30 per cent.

Although precise statistics are not available, th present number of units in the VSI sector easily exceec 10 million. Ten years back the number was in th neighbourhood of 9 million, which implies an averag increase of one lakh units per annum.

Statistically speaking, a marginal annual increase of per cent during the past decade is not something to glo upon. But the real achievement of the sector somewhere else. The value of output of the sector ros from the level of Rs. 33,500 crore in 1979-80 to a estimated Rs. 95,800 crore in 1988-89 and is expected t reach an all time high of Rs. 106,000 crore in 1989-9(

The mark up for the sector is much more impressive i the all important field of exports. In 1979-80 the value (exports by this sector was Rs. 2,225 crore. For 1988-8 the contribution is estimated at Rs. 9,134 crore and expected to rise significantly to Rs. 12,300 crore in th current financial year

Great potenti

The sector has a truely vast potential of absorbing very large number of our fast expanding workforce Te years back, the sector provided gainful employment 23.6 million persons. The number has increased around 39 million. This means that on an average th sector has absorbed 1.6 million more workers every yea

In terms of employment, this sector comes next agriculture. Employment is both full time and part tim The share of VSI sector within the manufacturing secto comes to about 80%. Units in this sector are set up b private entrepreneurs and artisans. It is indeed a pity th despite loud pronouncements made by the previou regime to make an all out effort for alleviating the lot the rural poor, the inherent potential of this vibrant secto was left very much under-utilised. It was assumed that th role of the public sector outlays in the promotion village and small industries was primarily catalytic nature and was limited mainly to provide some sort (

(Contd. on page 1.

Impact of foreign aid on fertiliser Industry

Dr. (Mrs) Sadhana Gupta

The author examines the role of foreign aid in the development and expansion of fertiliser industry in the country. According to her, World Bank Group assistance for various plants has resulted in raising production capacity as well as increased consumption of fertilisers.

IT HAS BEEN CALCULATED that in India's case, with assured water supply, an application of one nutrient tonnes of fertiliser yields an additional production of five to seven tonnes foodgrains. Thus for quite long, inadequate consumption of fertilisers has been responsible for keeping agricultural productivity and production at a low level. Prior to the begining of planned development in the country, agricultural productivity was almost stagnant and the main reason for that was negligible use of fertilisers. On the eve of First Five Year Plan the consumption of fertilisers was insignificant. It was only 0.5 kg per hectare and the total consumption of the fertilisers in the country was 56,000 tonnes N. At the begining of Fourth Five Year Plan, per hectare consumption of fertilisers was only 1/7 of World average consumption. Consumption of chemical fertilisers in the base year of Fifth Plan (1973-74) was estimated to be around 19.7 lakh tonnes of N 6.2 lakh tonnes of P_2O_5 and 4.1 lakh tonnes of K_2O. By the end of Fifth Plan the level of fertiliser consumption was proposed to be raised to 52 lakh tonnes of N, 18 lakh tonnes of P_2O_5 and 10 lakh tonnes of K_2O.

Consumption

The consumption of fertilisers was expected to go up from 5.3 million tonnes in terms of nutrients in 1979-80 to 9.6 million tonnes by the end of Sixth Five Year Plan. The target of fertiliser consumption contemplated for the Seventh Plan is in the range of 13.5 to 14.0 million tonnes of nutrients.

It is obvious that there has been a rapid increase in the consumption of fertilisers during the period of planned development. It went up from only 0.5 kg per hectare in 1950-51 to 5.1 kg hectare at the end of Third Plan and to 29.5 kg per hectare at the end of Fifth Five Year Plan (1978-79). Even this level of fertiliser consumption can not be regarded adequate when compared with that of other countries. Fertiliser consumption per hectare of arable land was 29.5 kg as compared to 4.14 kg in Bangladesh, 94.0 kg in China and 449.6 kg in Japan. The increase in fertiliser consumption has been made possible by increased supply of fertilisers in the country. Foreign aid has made an important contribution in the development and expansion of fertiliser industry in the country. It has also made possible the import of fertilisers from abroad in large quantities. Particularly with the availability of World Bank Group assistance for the development of fertiliser industry, the installed capacity for fertiliser production has increased appreciably.

Following table shows World Bank Group assistance for development of fertiliser industry —

From the above table it is clear that a total assistance of Rs. 632.17 crores has been provided by the World Bank Group for the development of fertiliser industry in the country. Out of the eight projects assisted, six have already been completed and two are under implementation. In addition to these, International Finance Corporation (IFC) has extended two loans of $ 30.44 million to Kanpur and Goa fertiliser plants in the private sector.

It was estimated that on completion of Cochin Plant Phase II, FACT will be able to manufacture annually 4,85,000 tonnes of granulated NPK fertilisers and 7500 tonnes of cryolite. It was also estimated that Phase II of the project will enable India to save about $ 16 million a year in foreign exchange due to reduced imports. The

Table 1

World Bank Group assistance for fertiliser industry in India

	Name of Project	Year of Authorisation	Institution Providing Assistance	Amount of Assistance Authorised (in Rs. cr)
1	IFFCO Fertiliser Project-II (Jan. 24, 1975)	1974-78	IBRD	81 75
2	Cochin Fertiliser Credit-II (Aug. 30, 1971)	1966-74	IDA	14 92
3	Gorukhpur Fertiliser Expansion Credit (Jan 7, 1972)	1966-74	IDA	7 50
4	Nangal Fertiliser Expansion Credit (Feb 9, 1973)	1966-74	IDA	43 50
5	Trombay IV Fertiliser Expansion Credit (June 19 1974)	1974-78	IDA	37 50
6	Sindri Fertiliser Credit (Dec. 18, 1974)	1974-78	IDA	68 25
7	Fertiliser Industry Project (Dec 31, 1975)	1974-78	IDA	78 75
8	Hajira Fertiliser	1980	IDA	300 00
		TOTAL		632 17

Source RBI, Report on Currency & Finance, Vol II, PP-172-174

completion of the expansion programme of Gorukhpur Plant, financed by IDA has enabled to increase the production capacity of the Gorukhpur Plant by 134000 tonnes of urea. The IDA finance of $ 58 million was provided in 1975 to finance $ 106 million expansion programme of Nangal Project which enabled an additional production of 152 thousand tonnes per year of Nitrogen in the form of urea. The modernisation and expansion of Sindri plant financed by IDA to the extent of $ 91 million has enabled to increase the production capacity by 900 tonnes per day of ammonia plant and a 1000 tonnes per day urea plant. According to IDA calculations it will mean a saving of $ 68 million in foreign exchange per year.

The IFFCO Fertiliser Project at Phulpur financed by World Bank to the extent of $ 109 million is expected to produce 900 tonnes of ammonia and 1500 tonnes of urea per day. The loan of $ 105 million extended in 1975 by IDA to the fertiliser industry was meant to increase its capacity utilisation from 60 per cent at the time of sanctioning credit to 85 per cent by 1979. IDA provided a credit of $ 400 million for Hajira Project in Gujarat.

The Kanpur and Goa plants, financed by IFC, started production in 1967 and 1972 respectively. The Kanpur plant has an annual production capacity of 450 thousand tonnes of urea and 200 thousand tonnes of Nitrogen. From the tabove discussion it is clear that World Bank Group assistance for various fertiliser plants and their expansion has resulted in raising production capacity of the industry considerably which has contributed to increased consumption of fertilisers and higher agri tural productivity.

Others' assista

Beside World Bank Group assistance, some frien countries have also helped in augmenting fertiliser sup in the country by financing fertiliser plants and provic assistance for import of fertilisers.

A total assistance of Rs. 405.27 crores has b provided by Canada, W. Germany, Japan and U.S.A. increasing the supply of fertilisers. U.S. Aid program has assisted the establishment of three large fertil factories at Vishakhapatnam, Trombay and Madras. T Rs. 50 crore plant at Vishakhapatnam is operated Coromondel Fertilisers Ltd., a joint Indian-Ameri enterprise. The plant is currently delivering 800 tonne finished fertiliser a day, saving Rs. 16 crores a year foreign exchange. The U.S. Export-Import Bank ext ded a foreign exchange loan of $ 27 million (Rs. 20 crores) to Coromondel, which has also received a loan Rs. 12.29 crores from the sale proceeds of PL-4 Commodities. The Fertiliser Corporation of India public sector enterprise, operates the Trombay Pl which presently has an annual capacity of 135000 ton of fertiliser nutrient. This plant has largely been financ by U.S.A.

It is obvious from the above discussion that foreign from World Bank Group and others' assistance ha resulted in a considerable increase in the instal capacity of fertiliser production. The production capac has gone up from 10,000 tonnes of Nitrogenous a 102,000 tonnes of phosphatic fertilisers at the end 1950 to 4667 thousand tonnes of Nitrogenous and 13 thousand tonnes of phosphatic fertiliser in 1981-82.

Table 2

Production Capacity of Fertiliser Industry in India

('000 tonn

		Nitrogenous	Phospha
At the end of	1950	10	1
	1965	460	2
	1968	845	4
	1973	1947	5
	1974-75	2625	8
	1975-76	3024	9
	1976-77	3065	10
	1977-78	3189	10
	1978-79	3274	11
	1979-80	3902	12
	1980-81	4586	13
	1981-82	4667	13
	1989-90	9615	28

Source (i) Fertiliser Statistics 1976-77
(ii) The Economic Times, July 28, 1982, p-IV Table
(iii) Fertiliser Statistics 1979-80, p-246

The production of fertilisers has also gone up cons derably which has reduced India's dependence on fer liser imports and significant saving of precious forei exchange. The share of fertiliser imports in the tot supply has tended to decline after 1980-81. In 1976-7

the per cent share of imports in total supply was 30.6. It increased to 36 per cent in 1977-78 and 39.19 per cent in 1978-79. After reaching the peak share of 47.4 per cent in 1980-81, it started declining and was 33.3 per cent in 1981-82.

The increased supply of fertilisers has bridged the demand supply gap and has thus resulted in increased consumption of fertilisers which has led to a significant increase in average yield of rice and wheat. A significant correlation can be established between per hectare consumption of fertiliser and average yield of food crops. The following table shows fertilised consumption and average yield of rice and wheat.

Table 3

Fertiliser consumption and average yield of foodgrains

		Fertiliser Consumption kg/ha	Average yield Rice qt/ha	Wheat qt/ha
Pre-Plan	1950-51	0.5	6 7	6 6
	1955-56	0 9	8 7	7 1
	1960-61	1 6	10 1	8 5
	1965-66	5 1	8 6	8 3
	1966-67	7 0	8 6	8 9
	1967-68	9.4	10 3	11 0
	1968-69	11 0	10 8	11 7
	1973-74	16 7	11 5	11 7
	1978-79	29 5	13 3	15 7

Source Govt. of India, Planning Commission, Sixth Five Year Plan 1980-85 p 14

Above table shows that in 1950-51 fertiliser consumption was only 0.5 kg per hectare and as a consequence average yield of rice was only 6.7 quintals per hectare and that of wheat 6.6 quintal per hectare. After the first two plans i.e. in 1960-61 the fertiliser consumption increased to 1.6 kg hectare and average yield of rice went up to 10.1 quintals per hectare and that of wheat to 8.5 quintals per hectare. After that the increase in fertiliser consumption was very rapid but the increase in average yield was not very impressive. The increase in average yield per hectare was more in case of wheat than in case of rice. In 1978-79 fertiliser consumption reached a figure of 29 5 kg. per hectare and the average yield of wheat to 15.7 quintals and that of rice 13.3 quintals.

It can thus be concluded that technological breakthrough based on the use of H.Y.V seed and fertilisers, which was largely financed by foreign aid has lead to increased productivity and agriculture and as a consequence the production of foodgrains increased significantly and country became self-sufficient in matter of food. □

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(Contd. from page 10)

financial assistance, entrepreneurship development, construction of industrial sheds, procurement and supply of raw materials, enlarging marketing facilities and capital subsidy. No wonder, although the outlays for the sector showed a steady increase in terms of specific amounts earmarked for the purpose, the allocations declined rather sharply in the all important percentage terms. Perhaps the disorganised structure of the sector, especially the cottage and village industries segment contributed liberally to the present state of neglect at the hands of authorities Since the sector did not choose to create loud noises, the way organised sectors did, the authorities presumed that all was well with the blessed sector. The small scale segment did of course get some attention from the Government, mainly because the promoters were able to come together through a string of associations and aired their problems and grievances through representations and media coverage

The setting up of the National Small Industries Corporation and the establishment of a separate apex bank, known as Small Industries Development Bank of India, have helped solve many of the problems faced by the sector and have provided valuable assistance to a very large number of small scale units But much remains to be done.

[illegible] growth

The new planning team at the centre has rightly premised that in order to generate gainful employment opportunities for our teeming millions, the full potential of VSI sector must be properly utilised. Interestingly, a Planning Commission document prepared a few months back, frankly states, "The growth rate of the modern small scale industries and the traditional industries has been disparate. The former has shown significant dynamism. It has potential to provide opportunities for productive employment. A proper development strategy for this segment can lead to higher rate of growth and reduction of inequality." It further states, "The backlog of unemployment would become unmanageable unless the rate of productive employment generation is accelerated substantially to around 10 million new work opportunities per year during the VIIIth Plan . . . New opportunities have to be generated in agriculture and related activities and in village and small industries. This will require a massive effort at skill formation and technological upgradation in rural areas and small towns, in artisan households and small manufacturing units." It adds that far greater growth in production and employment is possible provided the difficulties plaguing this sector are removed in a systematic manner through a number of policy initiatives

Way back, the Father of the Nation, recognised the utility and the potential of the sector in generating work opportunities for rural masses and weaker sections of society. He not only pleaded for assigning highest importance to the sector but identified himself with the poor and the downtrodden by making the spinning wheel an integral part of his daily routine After four decades of experimentation with high profile hi-tech gadgetry, the wheel has turned full circle. □

Mahendra Jhamb, Freelance Writer New Delhi.

Non-ferrous metals: need for a well defined policy

Dhurjati Mukherjee

With diversification of the industrial base, the supply of non-ferrous metals will lag behind its demand in the next few years. This calls for more R & D work to tap the existing resources. The author underscores the urgency for a time-bound action plan.

THE NEED FOR FORMULATING A NATIONAL metal policy was emphasized at a recent seminar in Calcutta by no less a person than Mr. V. Krishnamurthy, the Chairman of the Steel Authority of India Ltd. (SAIL), who said that such a policy should encompass all the relevant aspects for the development of the industry. Fifty per cent of our present non-ferrous requirement is imported, of course, with the exception of aluminium in which there is self sufficiency. Moreover with the whole new range of alloys and super alloys finding increasing applications in areas like aerospace, nuclear power, oil drilling, refinery equipment and telecommunications, it is imperative for the creation of indigenous facilities.

The projections made for the terminal years of this century forecast considerable gaps in the demand-supply position for most non-ferrous metals and continued dependence on imports to meet the ever increasing demands from our industries. The objective of the country for the 21st century, therefore, should be to attain a level of 70 to 75 per cent self-sufficiency in major non-ferrous metals.

For lead, zinc and copper, the level of self-sufficiency today is lower than 60 per cent and hence these major non-ferrous metals need special attention. For nickel, tin and tungsten, there is hardly any indigenous production today and hence special efforts have to be made for the production of these metals, even if the deposits are lower than the normal cut-off grade, due to their strategic importance.

Growing demand

Aluminium, which is the third most abundant element in the earth's crust, has shown an accelerated rate of growth of consumption in the developing countries from 130,000 tonnes in 1960 to 2085,000 tonnes in 1985 In India, though during the first two years of the Eighth Plan, the supply of aluminium will be in excess of domestic demand, during the years 1992-93 and 1993-94, the demand-supply position will be more or less matching. During the terminal year of the Eighth Plan, the demand exceeds supply by about 26,000 tonnes This gap will widen further on account of growing need and exports of aluminium, according to projections, and as such it is imperative that augmentation for production capacity for aluminium is planned before hand.

As demand for aluminium increases in various sections like transportation, building and architecture, electrical, packaging etc. there is need to tap the abundant inputs available in the country and plan a green field smelter of economic size. The technology also has to develop to meet the challenge of making superior aluminium alloys available for space as well as defence programmes.

The projection for copper demand in India with 150,000 tonnes as the base demand for the year 1989-90 is estimated to be 292,400 tonnes by the turn of the century. Against the growing demand scenario of copper, it is imperative to increase mine and smelter capacity from the present level of 40,000 to 65,000 tonnes per annum by the end of the Eighth Plan and to around 171,000 tonnes by 1999-2000 to sustain the anticipated level of demand satisfaction.

The perspective for promotion of copper consumption reveals that technological improvements leading to material saving in the end uses of copper (example : miniaturisation in electronic products) and substitution of other materials are making an impact on the consumption pattern. In fact, aluminium being comparatively cheaper, and more abundant than copper in India, it has had a significant role to substitute copper in usuage as electrical conductors. However, the demand for copper will continue to increase, specially with the rapid growth in the telecommunication network in the country.

As regards zinc, which is the third largest non-ferrous metal in the world, consumption in India has increased manifold from 60,000 tonnes in 1960-61 to 148,000 tonnes in 1988-89. The Eighth Plan working group has forecast that the demand would grow at an annual compounded rate of 5.5 per cent till 1994-95 and thereafter at a reduced level of 5 per cent during the Ninth and Tenth Plan periods. Taking the base year as 1989-90, with the demand estimate for zinc at 155,000 tonnes, the forecast for the terminal year of the century (1999-2000) is estimated at 259,000 tonnes.

As the present production of zinc is not sufficient to meet demand, Hindustan Zinc Ltd. has undertaken the construction of an integrated lead-zinc smelter complex to produce 70,000 tonnes per annum zinc metal. After the commissioning of the project in 1991, the demand satisfaction of zinc will rise from 49 per cent in 1988-89 to a peak of 89 per cent in 1992-93 to stabilise later at around 75-80 per cent. However, it would be desirable to create additional primary zinc smelting capacity sometime in the Ninth Plan period to meet additional demand.

The perspective for promotion of zinc reveals that the galvanising sector would continue to be the key area for future zinc consumption in the country, as well as the world over. Because of its superior quality, process economy and versatility, the continuously galvanised sheets would continue to have a strong demand. In fact, zinc consumption would increase in the construction and automative sectors.

Though world demand of lead has increased marginally, in India the consumption has grown at an annual compound rate of 4.2 per cent from 1960-61 (24,700 tonnes) to reach a level of about 78,000 tonnes in 1988-89 Taking the base year as 1989-90, with demand estimates of lead placed at 82,000 tonnes, the consumption during the Eighth Plan is projected to grow at an annual compounded rate of 7 per cent, followed by a decline during the Ninth and Tenth Plans. The demand of lead at the turn of the century is estimated at around 154,000 tonnes.

Since the present production is insufficient to meet the demand, Hindustan Zinc Ltd., the sole producer of primary lead in the country, has undertaken construction of an integrated lead-zinc smelter complex having a capacity of 75,000 tonnes per annum lead at Chanderiya in Chittorgarh district, Rajasthan. With the commissioning of this smelter, the demand satisfaction of primary lead would rise from 25 per cent in 1988-89 to 63 per cent in 1992-93. Thereafter the demand satisfaction will drop gradually but then it would be difficult to bridge the gap due to insufficient lead reserves in the country. As usual, the storage battery industry would continue to be the major consumer, though with the other emerging application areas of lead making rapid inroads, consumption of this metal may be enhanced during the 21st century.

More R & D

Tin, cadmium, nickel, cobalt and tungsten are the other important non-ferrous metals whose demand has been steadily increasing. Special mention may be made of tin, whose projected demand on the basis of growth of tin plate consumption has been estimated at 9200 tonnes by 1989-90. In the absence of any significant domestic production so far, tin requirements of the country are being almost entirely met by imports of tin metal, tin scrap and tin alloys. Similarly though nickel has wide usage, India is importing its total primary nickel sulphate producution from anode slimes of copper refinery by Hindustan Copper Ltd. at its Ghatsila smelter. In view of the increasing growth of nickel applications in stainless/alloy steels, copper nickel alloys, super alloys and corrosion resistant applications, a compounded growth rate of 5 per cent is forecast (from a base level of around 20,000 tonnes in 1989-90) during the Eighth Plan period and 3 per cent thereafter upto the turn of the century.

Thus there can be no denying that the non-ferrous metal sector deserves greater attention. The immediate needs in this area would be to improve existing technologies and introduce cost effective processes since some of our ore reserves have a low metal content. Concerted R & D work will have to be undertaken in this direction by the industry in coordination with national laboratories and research institutions.

Except possibly aluminium where because of various factors, including rich reserves of bauxite in the country, India can become a major exporter, well defined policies will be needed for other metals, both to gear up exploration work of raw materials and also to boost production to meet indigenous demand. Studies have shown that India has the capacity to achieve a much higher rate of demand satisfaction of copper and zinc through indigenous production. It is time that concerted efforts are made by the industry and the Government to modernise production as also increase capacity utilisation so that imports in the sphere of non-ferrous metals are reduced drastically and a plan evolved to improve the availability. ☐

Dhurjati Mukherjee, Asstt Editor, Evening Brief, Calcutta

Proposed Mangalore – Bombay new Railway line

The Final Location Survey for the 837 Km long proposed broad gauge new railway line connecting Mangalore with Roha has been done. The estimated cost of this new project is Rs. 862 crores. ☐

Mineral development — challenges in the nineties

P.K. Lahiri

MODERN INDUSTRIAL DEVELOPMENT depends critically on the easy availability of various metallic and non-metallic materials which are derived to a very great extent from minerals. Minerals are thus, the essential raw materials for many basic industries like steel, non-ferrous metals, cement, etc. as well as in the emerging new materials under development: The nature and pace of the industrial and economic development are determined by a nation's ability to mine and process its mineral raw materials in the most efficient manner. Being on the threshold of the Eighth Five Year Plan, the time is now opportune to make an assessment – with the solid experience gained over the last four decades in the sector – of our achievements and shortcomings so that we can plan our future strategies for the 90's.

New philosophy

With the major thrust given to surveys and exploration since Independence, a number of new discoveries were made and the inventory of mineral resources registered a conspicuous growth. While we have abundant resources of non-coking coal and lignite, bauxite, iron ore, lime-stone, dolomite, chromite and ilemenite, the position in respect of base metal ores, precious metals, diamonds and certain important industrial minerals such as rock phosphate, kyanite sillimanite, high grade magnesite, etc. is not satisfactory. The exploration strategy for the future has to be reoriented, laying emphasis on those minerals in which the resources are poor. But for a few exceptions, many of our ore deposits have been located through surface shows or on the basis of old workings. We have hardly any major discovery of concealed deposits which underscores the need for a major change in our exploration philosophy.

A major thrust has to be given to modernisation and adoption of the latest techniques in the integrated survey and exploration organisations. This should be done with a view to locating concealed deposits and to cut down the time and cost of survey and exploration. We have t shift from the earlier pattern of emphasis on drilling at pre-determined grid pattern to the State-of-Art explc ration technologies employing remote sensing, gec physical and geochemical surveys. More emphasi should be given to application of geostatistics, computei ised ore body modelling etc. Studies for exploratio models should be taken up based on case studies c exploration results so far in selected mineral belts in th country

A major exploration effort is to be mounted for golc platinum group of metals (PGMs) and diamond in whic ore resources position is very poor. Tremendous achieve ments in foreign countries by application of the State-ol Art technologies should be an eye opener for us. Thoug programmes for modernisation and induction of State-ol Art technologies have been taken up by our survey an exploration organisations, much more needs to be done The real test for the efficacy of their efforts at moder nisation should be large discoveries of mineral deposit: particularly for base metals, PGMs, gold and diamond i the 90's.

More internal resource

Fifty two minerals are currently mined in the country 3 for mineral fuels, 11 metallic minerals and 38 non metallic (industrial) minerals India continues to b wholly or largely self-sufficient in about 40 mineral: which constitute the primary mineral raw materials fo thermal power generation, iron and steel, ferro-alloys aluminium, cement, refractories, ceramics, glass an inorganic chemicals Mineral production has also kep pace with the substantial growth in the mineral base industries In the total value of mineral production i 1989, fuel mining accounts for about 86 per cent, meta mining about 6 per cent and non-metal mining about 8 pe cent However, with all this growth, we seem to hav come to a situation where we are not generating adequat internal resources for the desired level of economic deve

lopment. This is perhaps due to the fact that while large capital has been invested in the mineral sector, production and productivity have not risen as expected.

Small scale mining is a subject of special significance to India. Many mineral deposits do not lend themselves to large scale mechanised mining such as small high grade deposits or low value non-metallic minerals. This has to be mined on a small scale to meet the growing local demand. Generally the small scale mines are labour intensive and mechanisation is only moderate. Small scale mining needs to be encouraged towards attaining the objective of working smaller deposits, for developing entrepreneurship in this field, for employment generation and for making available commodities which may be scarce in a particular region.

Minimising capital investment

In the case of aluminium, the country has been able to produce enough surplus for export. This situation would continue for the next four years or so, after which deficit may arise on account of growth in demand. Thus, it would be essential to set up additional capacities for aluminium during the 8th Plan. In the case of copper, indigenous production currently meets about 35 per cent of the demand, and the balance is being met by import. Even for sustaining the demand satisfaction at the existing level, it would be essential to expand capacities of the copper smelters during the Eighth Plan. However, this depends upon the outcome of the feasibility study on expansion of the Malanjkhand Copper Project, which is currently under progress. Current level of demand satisfaction of zinc by indigenous production is about 58 per cent and lead about 56 per cent.

Heavy capital investment on plant and machinery constitutes a large proportion of the total project costs in the case of the minerals and metals sector. When the capacities thus created are not achieved, specific investment costs rise abnormally high. This would result in high costs of mineral and metal production leading to tapering of generation of internal resources. While the industry could be temporarily saved by suitably raising the prices, it should be recognised that unabated spiralling prices could curtail the growth of the industry as the demand is bound to be suppressed by the upsurge in prices. It is, therefore, necessary at this stage to make a determined effort to see how capital investments required for creating capacities could be minimised through the adoption of technologies which are particularly suited to our conditions. India has in the past entered into several collaborations and imported technology from abroad in the hope of achieving results economically favourable to the industry. It is imperative to analyse the final outcome of these collaborative efforts if we have to draw the right principles for the future. Factors responsible for success should be evaluated. If we have not been successful in some cases, we should also analyse as to why the results have been otherwise.

Ecology

In the past there has been greater stress on industrial growth without giving enough attention to the environmental and pollution aspects. However, this has been undergoing a welcome change and the basic approach now is sustainable development in harmony with the environment. Mining operations, both in open cast and underground, results in inevitable physical disturbances of the ground by excavation, dumping of overburden and tailings and by destroying natural vegetation. It also has an adverse impact on agricultural fields.

We have to plan operations in such a manner that the land which is damaged by mining operations could be reclaimed for future use. Efforts should be made towards selection of suitable species of plants for growth of vegetation, on waste dumps and tailings. Adequate measures also need to be taken for prevention of air, water and noise pollution. Increasing awareness in this field has culminated in the incorporation of environmental management plans and land reclamation schemes right from the concept stage in the case of mineral projects. However, much more needs to be done in this direction and managers in the mineral industry should give the necessary priority to this important area.

R & D

A major thrust has been given for R & D efforts in the mineral sector covering the entire gamut of activities from geological surveys, exploration, mining beneficiation, extraction of metals to development of materials – the complete ore-to-product chain. The basic objective has been a judicious combination of the development of indigenous technology with efficient absorption and adaptation of foreign technological innovations wherever needed. The endeavour is to develop appropriate forward looking technologies so that the final product remains competitive, both in the domestic as well as in the international market.

Besides strengthening the R & D infrastructure, a number of institutions at the national level are being established – Jawaharlal Nehru Aluminium Research, Development and Design Centre, Non-Ferrous Materials Technology Development Centre, Mineral Processing Laboratory and Pilot Plant of Indian Bureau of Mines and National Institute of Miners Health are the main ones. These institutions aim at development of indigenous technologies suited to domestic needs, besides absorption and adaptation of imported technologies with the ultimate goal of self-reliance in the technology.

A larger input will have to be provided by the Mineral sector for the growth of the Indian economy in the '90s. This would call for a concerted effort by the various organisations/undertakings engaged in survey, exploration and exploitation of mineral resources and production of mineral based commodities and metals. Thus the outlook is full of challenges which the organisations and undertakings in the mineral sector are gearing themselves to meet confidently. □

P.I.B

P.K. Lahiri, Secretary, Deptt of Mines, New Delhi.

Looking Ahead

Children's university

Brahm P. Gupta

THE HIGHLIGHT OF THE SECOND National Conference on Child Education held in New Delhi in November 1989 was the proposal to set up a Children's University, perhaps the only one of its kind in the world. The concept envisages the dream of non-traditional temple of learning and research with the focus on Child. It will offer abundant opportunities for the fullest flowering of the child's personality through a combination of work experience and learning, rather than through teaching-oriented methodologies.

The then Minister of State for Education, while chairing the session on the University, said, "The main aim of education is to build character. Character-building starts right from birth of the child. But today there is neither the paternal grandmother nor the maternal grandmother to guide the child. Parents are also occupied with their personal problems, whether of office or home. The Western influence has created an emotional communication gap between children and parents. I am sure this Children's University would emphasise the all round development of the child through sports and cultural programmes, apart from imparting text-book knowledge. Such a curriculum would improve their health and develop an intellect deeply immersed in national unity and humility".

Action programme

The Indian Council for Child Education, which convened the Conference, has made a provision of 200 acres of land for this project. An Advisory Committee, comprising noted educationists and planners, has taken up the formulation of an action programme to give a concrete shape to the Councils's unique concept of a Children's University approved at the second National Conference on Child Education held in November 1987.

An integrated research and development complex is visualised to develop the entire universe of the child. The school for the child would be the nucleus, around which research into all aspects of a child's growth would be provided to serve the child in its total personality development in the appropriate cultural – scientific perspective. The Committee agreed that a national awareness was evident in massive research programmes in progress in the country in almost all areas of child development, but felt the urgent and imperative need to bring it together and related closely to the growth of the child in totality.

Constituents

The Children's University has been conceived as a three-component structure. First, at the centre would be a school for students from all parts of the country living and studying together in an humane set-up.

The Children's University would be a non-traditiona University which will not depend on government grant for its existence. It would be an institution which will hel us in realising our cherished dreams about children' education. The Nursery Section of the school wil comprise kids from three to five or six years of age Education will be imparted to them through non conventional methods, making full use of games, toys an hobbies. No conventional text-books will be prescribe for them.

Children above five years of age will be admitted to th main school. Initially, it will have one thousand students Every year a thousand more students will be added unti the total strength reaches ten thousand. They will receiv education as resident students for eleven years. At thi stage also, education will not be imparted through a hug pile of text-books but through a combination of worl experience and learning. During this period, all th children will also be required to take part in productiv work in the University campus. They will learn certai skills which will enable them to pursue their ow vocation. Conventional examinations would be dispen sed with during the entire schooling period.

After leaving the school, its alumni would be provide opportunities on the Campus for specialised studies in th subjects of their interest.

Specialised institutions

Second, there would be a number of specialise institutes on the Campus which would be centres o research on problems related with children. These institutes would make a close study of the school as wel as the surrounding community and would abstract from experience for replication elsewhere. Four such institutes – Institute of Child Health, Institute of School Education, Institute of Games and Sports for Children, Institute o Toys and Hobbies for Children – are envisaged.

Third, the Campus of the University would itsel provide an educational experience of great value. A 'min India' would emerge in the Campus. Every State will be provided land to set up their own cultural centres. These centres will remain active throughout the year. Everybody will have a glimpse of the lifestyle, food habits, dress and other important aspects of different parts of India. The festivals of various States will be celebrated by all together.

The best features of Tagore's Shantiniketan, Shri Aurobindo's Ashram at Pondicherry, the Gurukul system, the Bal Mandir of Gijubhai and Ivan Illich's 'Deschooling Society', will be incorporated in the scheme for the development of the proposed University. □

Brahm P. Gupta, Freelance Writer.

· March 8th : International Women's Day

Women workers demand a better deal

G. Ravindran Nair

The unorganised or the informal sector employs the vast majority of our rural women. This sector, however, while extracting the maximum contribution from them, has given them very little in return. The author examines the reasons for this state of affairs and suggests a few remedial measures.

WOMEN WORKERS IN THE unorganised sector mainly belong to agriculture, animal husbandry, fisheries, home-based industries like handicrafts, handlooms, coir industry, agarbatti making, bidi industry, sericulture, construction industry and the like. What are the common characteristics of these women in the informal sector? These women suffer from fewer and poorer opportunities to work, face greater impact of employment, unemployment and casual nature of work, greater vulnerability because of lack of skills and education; lesser mobility and heavy responsibilities; a systematic social practice of under-rating of their work; and lack of access to better technologies, tools and productive assets.

The vast majority of rural women in the unorganised sector is landless; they work in the field, performing a variety of farming occupations like sowing, transplanting, weeding, harvesting, threshing, winnowing, storing and processing the grain. In addition, they bear the burden of bearing and rearing children, collecting and fetching water, gathering firewood, cooking and cleaning activities which consume much time and energy. Although women work for longer hours and contribute substantially to the family income, they are not recognised as workers either by the women themselves or the data collecting agencies and the government. Only a few care to take into consideration the multidimensional functions of women which include both their productive roles in a variety of fields and their role as mothers.

The activity profile of poor women workers presents a complex picture. On account of high incidence of casualisation, intermittency and erratic availability of work, women are generally engaged in a multiplicity of activities. Because of the multiplicity of work, they are faced with multiple employment status which varies from unpaid family work to wage labour outside home, contract or piece rate work, independent work and rendering of services in exchange for goods and services.

There are a number of studies to show that women work for longer hours and contribute more than men in terms of total labour energy spent by the family members. On account of deeply entrenched social customs, taboos and prejudices, women's work continues to be invisible and confined more to non-monetray activities. "It has been observed that the average hours of unpaid work done by unmarried women outside home varied from 6.13 to 7.53 hours per day, some of them working more than 10 hours each day. Apart from domestic duties, women engaged in agricultural operations work on an average for about 12 hours on the farm and in taking care of cattle at home."

The female labour force is further characterised by poor occupational diversification. According to the 1981 census as much as 79.4 per cent of women workers are engaged in agricultural activities mainly as agricultural labourers. Again as workers, an overwhelming proportion of women i.e., 93 per cent or more, are engaged in the unorganised informal sector mainly as self-employed, wage earners and as casual workers. The incidence of casual wage earners in agricultural and construction work among women ranges from 75 per cent to 96 per cent of the total female wage earners. The wage offered for the same work is generally one half or less than that of men workers. As self-employed workers, they work for longer

hours with little or no fixed capital or working capital having no fixed place to work, vending in open space and with no protection from existing labour laws.

If the quantitative contribution of poor women to their family income is highly significant, their qualitative contribution is more striking; for unlike the men who would earmark part of their income for a lot of personal spending, the poor workers hardly spend anything on themselves. Their entire earnings are utilised for the welfare of the members of the household, more particularly children.

Dairy industry

An analysis of women's work in few sectors, would show the immense contribution women make, and the poor recognition they get for all the sacrifices they make. Worst of all, they continue to be exploited by all. Take, for example, women's role in dairying. Their contribution to dairying ranges from collection of fodder to milching of animals, cleaning, washing and taking care of the animals. They get up long before daybreak to milk the cattle and work the day long attending to all the needs of the milch animals, besides doing all the drudgery of domestic work. But they have hardly any say, in owning the animals, or the cash income obtained from the sale of milk. (A welcome departure in recent times has, however, been the financial assistance given under the Socio-economic Programme of the Central Social Welfare Board to needy women to buy milch animals and earn a living out of the sale proceeds of the milk yielded by the cows or buffaloes.)

Even in the milk co-coperatives, women are seldom included as members and are rarely seen on the managing committees In other words, women's co-operatives are a rare phenomenon. Though providers of milk, they themselves hardly get any milk to strengthen themselves to cope with the back-breaking jobs that sap their health This apart, women being outside the pale of co-operatives, they do not get a fair price for their milk, or proper marketing outlets and are often exploited by the local money-lender or local procurers of milk

However, where women are given an opportunity they have shown that they can manage the show in a better way. The success stories of the dairy co-operatives of women show that women can manage the co-operatives well and use their income for the betterment of the family.

Women's organisations have put forward several suggestions to safeguard the interests of women in dairy industry. These include: (a) fifty per cent of the members of the milk co-operatives should be women, (b) each co-operative should have two female members on the managing committee, (c) 10 to 30 per cent of the co-operatives should be exclusively women's co-operatives; and (d) in milk projects women extension officers should involve women as beneficiaries and as owners of milch cattle.

Construction industry

In the informal sector one of the most exploited groups are the women construction workers. They suffer from temporary and shifting nature of work and under[g] enormous physical strain, toiling hard in all seasons As this is not enough, they are poorly paid, suffer fro[m] insecurity of job and are constantly exploited by t[he] contractors and middlemen. Frequent changes in the worksites and the uncertain nature of their work depri[ve] them and their children of the basic needs like healt[h] education and even such a common thing as a ration car[d]. Accidents and deaths at worksites are common and the[y] hardly get any compensation. The health problems of t[he] women workers become acute as they have no faciliti[es] even for rudimentary medical care. The children are le[ft] high and dry with hardly any kind of day care or crec[he] facility with elderly girls baby-sitting at the cost of the[ir] own education with the mother away at work. Employe[rs] seldom pay them wages on time, the payments rema[in] unsettled even when the women are leaving the worksi[te] for their native places.

According to the 1981 census, out of a total of 36 la[kh] construction workers, 10 per cent are women. Althou[gh] the construction workers are covered under various Ac[ts] like the Minimum Wages Act, the Contract Labour A[ct] and the Inter-State Migrants Act, these laws are mo[re] observed in their breach than in their genuine applicatio[n]. Steps to safeguard the interests of women constructi[on] labour include: (a) stringent enforcement of the prov[i]sions of various labour laws as are applicable to them (b) severe punishment for the violation of the labo[ur] laws; (c) allowing trade unions and voluntary organ[i]sations to file cases of the violation of laws; (4) welfa[re] programmes financed by the employers and contractors (5) upgrading the skills of workers; (6) designing of too[ls] and equipment to make the work less hazardous and le[ss] arduous for women, (7) provision of welfare faciliti[es] like creches; and (8) organisation of the workers [to] protect their rights and fight against exploitation In th[is] connection, attention is drawn to the report of t[he] National Commission on Self-employed Women a[nd] Women in the Informal Sector which has made sever[al] recommendations to improve the lot of this neglect[ed] labour force [ ]

G. Ravindran Nair, Freelance Writer New Delhi

Increase in dependents allowance

The Employees' State Insurance Corporation h[as] approved increase in the rate of compensation to t[he] dependents of an insured worker who dies on account [of] an employment injury The new rates to be effective fro[m] January 1, 1990 would be a minimum of Rs. 14 for thos[e] whose average daily wages were below Rs. 16 per da[y]. Earlier, the rate of dependent benefits varied fro[m] Rs. 3 50 to Rs. 9.80 according to the range of dail[y] wages The minimum payable rate works out to Rs. 25[...] per month.

The Corporation also approved that the expenditu[re] on medical care for a period of first three years, in respe[ct] of implementation of ESI schemes is new areas wi[ll] be borne by the Corporation. The ESI Scheme no[w] covers 2.6 crore beneficiaries. [ ]

Imperatives of women's uplift

Uma Joshi

Inspite of constitutional safeguards and other administrative measures, women continue to be the single largest exploited citizens in India. Illiteracy, lack of training and the general socio-economic milieu have all contributed to this situation. The author, therefore, advocates for opening up of opportunities for independent employment and income for women and a total war on female illiteracy.

THOUGH WOMEN HAVE CONTRIBUTED significantly in every sphere of life, yet for various historical, social, religious and cultural reasons and in spite of many constitutional guarantees and legislative measures, women still remain backward and short of their rightful place in society. The findings of the National Status for Women Committee (1975) have revealed that the status of women has been declining steadily. This observation indicates that the initial recognition of women's rights, which emerged during the freedom struggle and was expressed in the Constitution, has run into rough weather

The Parliamentary Consultative Committee attached to the Ministry of Human Resource Development on October 26, 1988 urged the government to evolve a time-bound action plan for implementation of the National Perspective Plan for Women (NPPW) 1988-2000. A proposal for reserving seats for women in Parliament, State Assemblies and local bodies was endorsed by representatives of a number of women's organisations at a meeting convened in New Delhi on September 7, 1988 The meeting was of the unanimous view that political reservations for women were a must at least for some years to cme. The NPPW also speaks of a 30 per cent reservation of seats for women in various jobs. Constitutional amendments will be necessary to bring about reservation of seats in Parliament and State Assemblies The State Governments could take the initiative in the case of local bodies like Panchayats. Also, while the proposal for Women's Development Corporations in all the States was a welcome step, an apex agency at the Centre which could coordinate the work of these corporations is essential.

There is a view that time is now ripe for reviewing and amending all laws and practices which discriminate against women. A commissioner for women's rights to follow and monitor enforcement of legislation in this regard seems to be necessary Experience has shown that though the national efforts for development had led to an all-round progress, their fruits had not reached all sections of the society, particularly women who constitute the single largest group of exploited citizens. It was appropriate, in this context, that the AICC (I) recommended to the government on November 5, 1988 that a special component of women's programme be introduced in all rural development plans with emphasis on poor households headed by widows and deserted women.

The NPPW, for the first time since the 1976 National Plan of Action, has rightly presented a holistic approach to the development of women though it has swept some problems under the carpet and suggested quick-fix solutions for others. Thus, while it acknowledges that the percentage of women in the total labour force has been declining since 1961, it does not go into the causes of this decline and suggest how industrial and economic policies should be changed. Further, though it suggests a 30 per cent reservation for women in jobs, the more equitable measure would be that reservation in training programmes is ensured because the presence of fewer women in the labour force is largely due to technological changes.

Given the greater illiteracy among them, their lack of training and the general socio-economic milieu, women are being increasingly squeezed into menial jobs and low-grade self-employment. While the NPPW provides for a Commission for Women's Rights to monitor the violation of laws, an Equal Opportunities Commission should be set up with statutory powers to ensure that laws and policies on women do not remain on paper but are implemented effectively The Indian Constitution asserts that no citizen shall be discriminated against on grounds of caste, creed, religion or sex. In a situation where constitutional guarantees are not backed by a strong administrative machinery, violations occur and in some cases violations become the rule and observation of law an exception. Such has been the conclusion reached in a

eport on the implementation of the Equal Remuneration Act, 1976 which makes a disturbing reading.

Nevertheless, the role of women in the economy has een expanding at a phenomenal rate. A rough estimate hows some 25 per cent of women in cities and 54 per ent in villages add to family incomes. The recent nternational conference on Appropriate Agricultural 'echnology for Women, held in New Delhi on November 0, 1988, focussed attention on some of the burning roblems involved. It was noted that with the discrimiatory nature of ownership of land and other assets. 'omen's position has further deteriorated. The confernce highlighted the need for a charter for the betterment f farm women who have been neglected for centuries. 'he former Prime Minister, Shri Rajiv Gandhi observed t the conference that farm women should be given wnership of property and assets to allow them a say in e developmental process and to improve their status in ociety. This would, however, call for a uniform civil code or all women. The report of the core group (released on March 8, 1987) set up by the Department of Women and Child Development of Union Government also recommended the need for property rights for women, reseration of seats for them in elected bodies and a nationa' ommunications policy for women. It also recommended e formation of a National Resource Centre for Women) disseminate information, provide technical inputs as 'ell as monitor training and other programmes. This eport has recognised the need for a holistic approach to 'omen's programmes. A beginning was made in this irection from the middle of the Sixth Plan through rogrammes like the development of women and children ı rural areas (DWCRA).

In any case, the low status of women in large segments f Indian society cannot be raised without opening up of pportunities for independent employment and income or them. The main drawbacks of women's development ave been mainly preoccupations with repeated preg-ancies without respite in physical workload, lack of ducation, formal and non-formal, as also the preponde-ance of social prejudices along with the lack of inde-endent economic generation activity or independent ssets. It must be appreciated that since women will ontinue to be among the most vulnerable members of the amily, their economic emancipation with necessary afeguards should constitute the family-centered poverty lleviation strategy.

The rural scene

Surely, things are much worse in the rural areas where, ı the economic sphere, the conditions are particularly xasperating. In a society affected by scarcity, women are e most vulnerable elements – last to be hired, first to be ischarged. Hence, the need and demand for economic quality. Our traditional attitudes prevent a correct ppreciation of the meaningful role of women in the conomic field. The same traditional perspective not only losses over the unequal deal women get but finds nothing 'rong with the arrangement.

The genesis of discrimination and cruelty against 'omen can be traced to the inexplicable attitude or social apathy on the part of the Indian populace. Though the Constitution provides for equality between the sexes with special protection for women and children, Indians in their family life have been governed by personal and religious laws which fail to give women their due. These laws have relegated Indian women to an inferior legal as also social status.

It is well-known that despite the statutory rights enjoyed by women, discrimination against them is still prevalent and therefore, what is required is a massive movement for complete equality with men in actual practice. Article 51A(E) of the Constitution, dealing with people denegrating women, no matter how exalted a position they hold, has seldom been invoked against offenders. What with the recent legislation called the Indecent Representation of Women (Prohibition) Act, 1986, prohibiting indecent portrayal of women, derogatory ways flourish in cinema, advertisements, etc.

Women's long-term fight must be directed against the hardened attitudes and entrenched interests. In fact, women's demand for greater respect and enhanced rights is part of a wider democratic movement. Even those women's groups that are not front organisations for any political party do occasionally feel the need for cooperation of political parties on specific issues. However, such organisations must be constantly aware that their raison d'etre lies in the state of millions of deprived and ill-treated women. They must, therefore, never subordinate their struggle to the expediency of political parties. A woman's group that allows itself to become just an adjunct not only loses credibility and effectiveness but also betrays the mass of Indian women.

To break the circle, a war against female ignorance is a must. With women lagging behind men in literacy in India (24.8 per cent as against 46.8 per cent among men), voluntary organisations must play an important part in spreading education among women. Bias is often at work to prevent women from joining certain types of education/training in sufficient numbers. The example of China, the most populous and a developing country, needs to be emulated by us. Woman power is China's greatest manpower. Even among the elderly or the disabled, there is no idle hand. Half of China's one billion are women, which means that there are 500 million women who can provide brain and brawn to power China's ongoing modernisation programmes. Women carry heavy baggage at the airports, they till fields, manage private restaurants, drive cabs, supervise banks, run government ministries and factories, and so on. Everywhere in China women are in the forefront of development.

Our social organisations involved in the task of women's emancipation and uplift should launch nation-wide campaigns for creating consciousness among the people to treat women at par in all walks of life. The women of the country should demand that attrocities against them be curbed with an iron hand and the guilty punished adequately. Also, the various promises, projects and programmes launched by government and other voluntary agencies be effectively implemented on a time-bound basis. □

Focus

Ernakulam shows the way

KERALA, WHICH IS ONE OF the progressive States of the country, adds a new feather in its cap in the field of public health. Of late, it has launched a year-long health care programme, called "Operation Smiles". It is claimed, when the programme is over by the year end, Ernakulam may become the first district in the country to achieve cent per cent immunization stipulated by the Union Government. It forms the second part of the total literacy campaign which has now come to a close.

The total health care programme has two phases. The first phase: immunization of children upto one year. Second: check up and treatment of the neo-literates, instructors, master trainers and literacy workers numbering about 2.5 lakh.

All the districts in Kerala are being brought under the universal immunisation programme. But as yet no district has achieved cent per cent coverage of the six vaccines of the vaccine preventive diseases. The objective of the diseases prevention campaign launched by the district is to achieve 100% coverage of all the children upto one year. It will be covered within this year This will be achieved by active cooperation and involvement of the literacy workers and voluntary agencies. The voluntary force of over 20,000 instructors and master trainers and about 25,000 literacy workers are being utilised for the purpose. The services of other voluntary agencies may also be availed of.

A door to door survey to identify the children and pregnant women was conducted in the district last December by instructors and literacy workers. It was found that the number of children below one year of age is about 60,000. A one-day training for instructors about the programme was imparted in various centres from each ward of the local body. Two willing instructors were selected as the local health activists. Thus from about 1,100 wards of the local bodies, about 2500 local activists were selected. They were also given similar training. These local health activists are in charge of the health programme. Along with other instructors they will work with the employees of the health department. The instructors and volunteers will ensure that all the children of the target group will under-go vaccination without any fault. The register of the children will be maintained by the local health activists and they will see that the children get vaccination in due dates. Pregnant women will also be given two dozes of tetanus toxoid during pregnancy. The first phase of the immunisation programme is expected to be over by the first quarter of the current year. The Primary Health Centres will be responsible for imparting the vaccination.

Second phase

The second phase of the programme covers medical check-up and treatment of the neo-literates, literacy workers and the parents of the children undergoing immunization. This number is estimated to be between 2.5 and 3 lakh The preliminary screening of the sick persons will be done at the Primary Health Centres. Those who require detailed check-up will be checked up by the experts. This check-up can also be arranged at different centres convenient to the patients.

Based on this check-up those who require hospitalisation will be sent to government hospitals of the district. Funds are also being made to supply essential medicines not available in government hospitals and for those who need not be admitted in hospitals free.

Literacy

Meanwhile, the new experiment in mass movement for literacy, called Operation Flood-Light, has come to an end. The year-long campaign aimed at eradicating illiteracy from the entire population of the district between 5 and 60 years of age

A function was held in Ernakulam early last month to mark the culmination of the Total Literacy Campaign. The Prime Minister, Mr. V.P. Singh, who addressed the gathering on the occassion, lauded the effort.

Ernakulam is the second most populous of the 14 districts of Kerala The present population is estimated at 30 lakh. According to 1981 census illiteracy rate was 76.82 per cent. The literacy rate of the state is 70 per cent.

Mass movement

The local bodies of the district were entrusted with the primary responsibility of implementing the programme.

Apart from the Cochin Corporation there are 7 municipalities and 86 panchayats in Ernakulam district. A ward in the panchayats and municipalities and a division in the corporation is the smallest unit of the local bodies. There are 1,100 wards or divisions for all the local bodies together in Ernakulam district.

Popular committees were constituted with the mayor of the corporation, municipal chairman or the panchayat president as the case may be, as chairman. Similar committees were formed at the ward level with the concerned ward member or the councillor as the chairman. A district level literacy council was also set up as the apex body for overall coordination of the activities in the entire district.

For the implementation of the literacy programme, committees were set up at the block level also with the block development committee chairman as chairman of the literacy committee. Among others, representatives of political parties, trade unions, students, organisations, Mahila Samajams, associations of government servants voluntary agencies, clubs, pensioners, un-employed hands and prominent citizens were included as members of the various committees

Strategy

The special feature of the campaign were :

(i) It adopted a macro approach in the sense that the entire district is taken as a single unit instead of piecemeal approach

(ii) The objective of literacy is to be achieved in one stroke within the shortest possible time.

(iii) The entire campaign will be got done by voluntary workers who will not be paid any remuneration.

(iv) The local bodies with elected representatives will be directly incharge of implementation of the programme.

(v) For motivation of illiterates a mass upsurge will be created in the district by aggressive publicity and field work through various methods

(vi) The district administration will be fully involved in the campaign

(vii) A new experiment in nation building enlisting the active cooperation of all concerned is being tried

The Total Literacy Campaign of Ernakulam district was sponsored through the Kerala Sasta Sahitya Parishad The Kerala Association for Non-formal Education and Development (KANFED) which is the state resource centre was actively associated with the programme Various other agencies were also directly involved.

There are 6 lakh families in the district It was decided to conduct a survey on a single day to cover all these families. Squads of 4/5 literacy workers were formed in all the wards of the local bodies. Each squad was supposed to cover 50 families So 50,000 literacy workers were required to cover the district. Though it was a difficult task requiring massive organisational efforts, the job was completed within the stipulated time

The age distribution showed that 70 per cent of the illiterate persons, numbering about 1.85 lakh, were women.

Learning material

Though many models of learning materials were available, it was decided that fresh materials will be prepared taking into account the peculiarities of the district and the tastes of different categories of people Primer, work book, subsidiary learning materials, etc were designed and over 2 lakh copies of the materials were distributed through the local bodies to all the illiterates.

It was decided that on an average a centre should have 10 illiterates. In order to cover about 2 lakh illiterates 20,000 such centres were required In each centre classes were to be conducted by volunteer instructers About 20,000 instructers were required to cover some 2 lakh illiterate. Sixty per cent of the instructers were women This goal was achieved. To train voluntry instructers about 1000 master trainers volunteered their services Training campaigns were organised to train master trainers and volunteer instructers. The instructers were given training of the master trainers. The master trainers themselves were trained by resource persons who were experts in various fields. Formal instructers of the teaching classes began on first May 1989 at Ernakulam

Eye care

When teaching of the illiterates started, it was found that many of them had poor eye sight and they needed spectacles. Sixty per cent of illiterates among the 2 lakh were above the age of 35 years. In order to provide spectacles for all those who require them, a huge financial liability was involved. This aspect was not envisaged when the campaign was launched The real challenge was in getting the eyes tested within a short time About 1.25 lakh persons had to be tested before spectacles were distributed So again literacy workers were trained to assist eye specialists, doctors and it was decided to organise eye testing camp at the ward level of the local bodies. Hundreds of volunteers came forward and with their assistance the check-up part could be completed in about two months in all the 86 Panchayats, 7 municipalities and the Cochin Corporation

During the Eye check-up, it was found that for a few persons operations for cataract was necessary The Government Hospital, Ernakulam, undertook the responsibility for conducting cateract operations for all those who had to be operated upon

The implementation of the Eye Camp campaign gave the organisers immense satisfaction that they could help about 75,000 persons of the weaker sections

Evaluation

The internal evaluation of the neo-literates was made by the instructers. A questionnaire was prepared for this

(Contd. on page 28)

Some disturbing dimensions of environment problems

Dr. R.C. Mehta

THE GROWING SCALE OF technical development in recent years has led to a serious disturbance of processes in the biosphere. The undesirable consequences of pollution are now observable in the soil, the atmosphere and in particular, in the planet's hydrosphere. Two components needed for human life are directly threatened in our day, namely, air and water. Above all water. We know that even with an ever broader introduction of systems for purifying industrial effluent, the quality of water largely depends on its capacity for self-purification. As many scientists have noted, pure water is preserved for us in many places solely through self-purification. But the rate of increase of technogenic pressure on water resources is becoming so high that self-purification simply cannot cope. American experts, for instance, estimate that the US population's reserves of fresh water in the year 2000 will only last them 20 or 30 minutes. In practice it is impossible to purify water in that time. Let me cite here an example in our own local context. In Bichhari village (20 kms. from Udaipur) where Hindustan Zinc Ltd. and other industrial factories are operating, the quality of ground-water has seriously deteriorated. Though public sector Zinc-Smelter complex has taken care of the effluent in its own way without causing much hazard to the local environment and the people, other industrial establishments so far have not done so, with the result that water has been rendered totally unfit for human as well as cattle consumption A few of our scientists and I myself have seen this plight in Bichhari village. There could be several such instances causing havoc to human life and the natural environment. I, therefore, strongly feel that we must rise to the occasion and identify areas where pollution abatement is needed for immediate relief to the society at large.

From the example of pollution of the hydrosphere it will be readily seen that the interconnection of processes in the biosphere is now disturbed in many cases, which cannot help harming man. Technical capacity uncoordinated with nature's possibilities is turned into a kind of weakness. Urgent rational measures harmonising the interrelations of technique and nature are really necessary in this field. It is worthy of note that air pollution of urban and agricultural atmospheres today is one of our most serious manmade problems. In the United States alone, it is estimated that the annual crop loss due to air pollution is well over 500 million dollar Damage to natural and horticultural vegetation cannot be estimated, but certainly far exceeds the multimillion dollar figure for crop losses.

Two serious types of air pollution are: First, commonly known as the London Smog, is composed largely of high-sulphur fossil fuels. The Second type of smog is comprised of exidizing compounds, primarily ozone and oxides of nitrogen. Peroxyacetyl nitrate (PAN) is the major harmful nitrogenous compound, but quantitatively PAN is much less important than ozone. Photochemical smog containing ozone and NO_2/NO occurs in many major cities of the world, but because of the concentration of people and the peculiar atmospheric conditions of the Los Angeles Basain, it is most prevalent in South California of the USA Though well documented account of the extent of air-pollution damage to the natural environment in India is not available, it cannot be denied that the problem does exist or is causing damage to crop and the human life For example, in the Bichhari village that I have alluded to, a large number of fruit trees (chiefly mango) and economic shrubs were defoliated and have today become totally unproductive with the hare twigs and trunk giving evidence of the devastating damage wrought by the air toxicants emanating from the industrial operations in the area Therefore, we only need care and skill in locating the cause and nature of the air pollution which is certainly taking a rapid pace at least in industrially developed areas in our country

Deforestation

It will not be incorrect to say that the attitude to trees and plants is a down to earth index of a civilization, since centres of civilization and centres of origin of economic

plants often overlap. Trees are known to promote human welfare since the dawn of human civilization. Trees have provided shelter and shade to man ; fuel to keep his home and health warm ; timber for construction of his home and furniture for his comfort and civilized life ; forage and fodder for his cattle ; fibre for his clothes ; boats, ships and chariots for transport ; clubs, bows and arrows for his wars ; bats and sticks for his sport ; leaves and paper for the record of his civilization, education and business ; wood for his musical instruments ; scenic beauty for his recreations ; medicines for health and cosmetic material for 'my lady'. No aspect of human life can thus be separated from his very close and intimate dependence on forest and its products. According to official figures, India lost over 4 million hectare of forest between 1941 and 1976 for agriculture and other purposes. As a consequence of deforestation of such vast areas of forests, the trees, so to say, have struck back in retaliation at the modern civilization so created, by increased frequency of bigger and bigger floods which cause more and more damage to agricultural lands, industrial establishment and human habitats. Increased frequency of droughts and the rising heat of the atmosphere are also evidences of the serious ill-effects of deforestation. Such trends, are, in a way, signalling the occurrence of desertic conditions in the foreseeable future.

The alarming situation of deforestation is no less evident in the Aravali tract of the State of Rajasthan. Estimates show that a major 41.5 per cent reduction in well stocked forest area has taken place between early seventies and early-eighties. This has led to general degradation of soil and water regime and spread of desertification through gaps in the Aravalis. There is also emergence of rocky desert conditions in parts of the Aravalis. Experts report that the main cause of the Aravalis' degradation is 'biotic pressure'. The human population densities range from 120 to 150 persons per sq. km. A large proportion (57-87%) of inhabitants are tribals with heavy dependence for fodder and fuel on community and government lands. In Udaipur district alone the population has increased from 0.55 million in 1901 to 2.36 million in 1981. This has led to increase in arable farming area, over-grazing of hills and severe decline in forested areas. The Aravalis, of Rajasthan, have also suffered from the unscrupulous and uncontrolled extension of this activity. As a consequence of all these factors, the Aravali region has become prone to irregularity of rainfall, heavy incidence of short dryspells, quick run-off ; poor percolation, soil erosion, floods, sedimentation and reduced ground-water recharge.

It is pertinent to mention here that recently in 1987 a conference on 'Aravali 2001 A.D. – Prosperity or Disaster' was held at Udaipur Vikas Mandal, Udaipur. Realizing the devastations of the forest greenery of the Aravalis, it was recommended that the imperative of ecological rehabilitation of Aravalis derives from four major considerations :

i) Thinness of Arvali region soils and the danger of irreparable soil damage.
ii) Aravalis proximity to arid region and the attendant danger of extension of arid conditions.
iii) Watershed hydro-reservoir characters of the Aravali region when it is adequately forested.
iv) Its vulnerability as a poverty region inhabitated by economically backward and politically weak tribal people.

It was concluded that ecological rehabilitation of the Aravalis had to be seen in tandem with socio-economic development of the inhabitants. There has to be more productive use of land which is remunerative as well as restorative of soils and water conditions. Experts recommended trees and grasses in scrub forests and horticultural practices based on such species as mango, pomegranate, sitaphal, ber, anjir, lemon, anwala, papita Mixed plantations of indigenous species like bamboo, castor, kher, salardhavia khimi, anjan and babul can provide a basis of large scale employment 'minor forest produce and cottage industries. These measures can only succeed through people's involvement of voluntary organisations and supported by an extension-oriented forest department. It is disturbing to note that in the past there have been research and deliberations on desertification, deforestation and allied aspects of environmental degradation, but the findings have not reached the public There is no popular literature on the problem. Also, there is a strange complacency and indifference on the part of the city-based elite.

In the end, I must emphasize that if the current trends of defoliation of the Aravalis continue, irreversible chronic drought and desertification, with major famines, migrations, urban-crowding, are the most likely events to puzzle our future generation with their catastrophic consequences. It is noteworthy that in 1975, Edward Goldsmith, an ecologist, gave the warning of major famines in Africa in the eighties. The catastrophe happened in 1984-85. Early warning signals of similar conditions in the Aravalis by the end of this century have been flashing for the past few years. It is for the intellectuals, academicians and concerned citizens to heed these, to sound the alarm and to help re-directioning of policy and practice towards ecological rehabilitation of the Aravalis for generation of a sound environment for all of us to live in. □

Dr. R.C. Mehta, Dean, Rajasthan College of Agriculture, Bikaner

Yojana : Your forum

Yojana invites topical write-ups on economic and social themes. These may be on the present scene of employment and the potential areas of diversification, consumer protection, communication, transport and such economic issues. Social themes may include women, youth and children, welfare work, works of voluntary agencies, profiles of people and organisations engaged in various jobs. Your reactions on articles brought out in the journal or topical issues are welcome. So are your suggestions. Books on planning and economic topics are accepted for review.

Dairying in drought-prone areas — a study

Dr. K. Jayachandra

In this article, the author recommends increase in availability of fodder and provision of better marketing system for milk and milk products for further development of dairying in drought-prone areas of Chittor in Andhra Pradesh. The author also throws light on avenues for the extent income and employment generation through dairying enterprise.

THE DEMOGRAPHIC PRESSURE ON land and sub-division of holdings have jointly increased the number of uneconomic holdings in the villages. This fact has been termed by the researchers as the downward structural change in agriculture. This necessitates the importance of subsidiary occupations so as to increase the income and employment of the rural poor. Dairying occupation in India has been an age-old practice mainly because of its complementarity with agriculture and vegetarian habit of the majority of the people. The role of dairy enterprise in Indian agriculture is now changing from subsistence level to commercialized one so as to meet the increasing demand of milk and milk products of the increasing urban population. It is here an attempt is made to study the season-wise cost and returns from dairying as well as the possibilities of employment generation.

Multi-stage random sampling technique was adopted to select the ultimate unit of the sample. Chittor district of Andhra Pradesh was randomly selected amongst drought prone districts of the state. From three blocks, 9 villages were randomly selected and a sample of 100 farmers were also randomly taken from these selected villages. The data collected for the study covers from January 1988 to December 1988 through survey method with the help of prestructural schedule. Simple averages and percentages were worked out so as to draw the inferences. Due to smaller number of milch buffaloes, the data for only milch Cows (8.55 lakhs) were analysed.

For the sound financing and management of dairying it is of utmost importance to know the cost of maintenance of a milch animal and the proportion of various costs in the total cost. The cost of maintenance of milch cow including feed, fodder and labour comes to Rs. 5397.08. Out of this total cost, the feed and fodder constitute a major part of it (4047.81). The other significant costs are labour and interest in value of milch animals.

As feeds and fodder constitute the bulk of the total cost and their availability also varies seasonally, the per animal per day feed cost was about Rs. 9.10 which varies from Rs. 6.60 (in summer season) to Rs. 13.02 (in winter) and to Rs. 7.05 (in rainy season). The higher feed cost during the winter season is mainly due to higher quantity of concentrates fed to the animals, higher percentage of animals in milk during the winter season (Table 1) and higher price of dry fodder during the season (Bajra etc.) as compared to cheap wheat straw available in the summer season. The low cost of feeding during the summer season is mainly due to feeding of comparatively cheaper dry fodder (Wheat straw etc.) concentrates (Musturd cake etc.) and lower proportion of animals in milk during the season. However the lower feed cost during rainy season is largely due to feeding of lesser concentrates and more quantity of greenfodder and its greater availability during the season. The data show that the feeding of concentrates is minimum in rainy season and maximum in winter season.

Cross-bred cow is famous for producing high milk yield. Its share in India's total milk production is about 65 per cent. Per day per cross-bred cow milk yield and per litre cost of production has been worked out in Table 1.

Table 1

Milk yield per day per animal (cross-bred cows) and cost of milk production and proportion of animals in milk during different seasons

Season	Proportion of milch cows in milk	Milk yield per day per cow (in litres)	Cost of production of milk (per litre)
Summer	58 12	5 23	4 72
Winter	72.28	7 46	5.00
Rainy	66 52	6 84	3.90
Year Average	65 64	6 51	4.54

Table 1 shows that per day average milk yield of cross-bred cows during the year is about 6.51 litres and its per

litre cost of production Rs. 4.54. However there is seasonal variation in milk yield and its cost of production. The figures reveal a strong relationship with winter season where both milk yield as well as cost of production is higher among all the seasons. Higher yield of milk in winter season is mainly due to greater percentages of animals in milk and feeding of more quantity of concentrates in the season. But in rainy season though the milk yield is almost equal to that of winter season, yet the cost of milk production is much lesser than that of other two seasons. The low cost of production in rainy season is mainly due to feeding greater quantity of green fodders and lesser concentrates. In summer season the yield of milk is lowest and cost of production is almost equal to the winter season. The higher cost of production and lower yield of milk in summer season are mainly due to lower proportion of animals in milk and non-availability of green fodder during the season.

Income and employment

In order to see the extent of income and employment generation through dairying enterprise, the per animal net returns and per farm human labour employment has been worked out in Table 2.

Table 2

Levels of Income and Employment through Dairying

S. No.	Particulars	Values (Rs)
1	Gross return per milch cow	5617 66
2.	Net return per milch cow	220 58
3	Average number of milch animals (per farm)	1 70
4.	Man days of human labour employment (per farm)	107 05

The figures in table 2 show that there is a gross return of about Rs. 5617.66 per milch animal during the year while the net return per milch animal for the year is Rs. 220.58 thereby indicating dairying a low paying proposition. Low net returns are mainly due to high cost of feeding. More costly concentrates are fed to the animals even at low levels of milk yield because of non-availability of green fodders almost all the year, except for few months of rainy season. Further during the year under study the prices of dry fodders are also very high due to continuous drought conditions prevailing in the district. Besides, feed and fodder are treated as purchased inputs. As a result, input value for home produced feed and fodder is considered high. However if these are treated as by-products they will go waste, and considering the cost of labour to zero, the dairying enterprise seems to be economically profitable. As regards the employment in dairying a farmer gets employment for about 107.05 in a year and maintains about 1.7 milch animals in his farm.

Conclusion

The study reveals that in order to reduce the cost of maintainance of milch animals, which in turn will reduce the cost of milk production, it is essential to increase the availability of fodders, specially green fodder. Therefore, the planning of dairy development in drought prone areas must include the fodder development programmes, including preservation of surplus fodder produced during the rainy season.

Another reason of low paying dairying enterprise specially in rural areas seems to be the existing low prices for milk and milk products. The situation needs provision of better marketing system for milk and milk products which can fetch remunerative prices to the dairy farmers and also the supply of concentrates at subsidised rates particularly to marginal and landless dairy farmers, so that they can be brought above the poverty line. □

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(Contd. from page 24)

purpose. It consisted of oral and written questions. The internal evaluation was done in two stages. The first stage was for those who joined the literacy classes earlier and who attained literacy before others could The first phase of the evaluation was conducted in October last About 60% of the learners passed securing 80% marks in this evaluation The second stage of the evaluation was conducted in December. Thirtyfive per cent of the learners came out successful in this evaluation.

The National Literacy Mission engaged the Centre for Development Studies Trivandrum, for external evaluation They prepared a questionnaire for conducting extensive field survey, interviewed learners, instructors and literacy workers They arrived at the conclusion that the district has attained the 95% literacy among the adult illiterate between 60 to 65 years of age.

Post literacy campaign

Post literacy work is very important in any literacy camp If this aspect is neglected, the neo-literates are likely to relapse into illiteracy. The Ernakulam District Total Literacy Campaign included post literacy work as an important aspect. Schemes have been formulated for taking care of the neo-literates

A very important decision of the post literacy work is to integrate the literacy campaign with development projects The neo-literates, instructors and literacy workers should be able to involve themselves in such activities Many projects are being thought of for this purpose □

Courtesy: Backgrounder provided by K.R. Rajan, Ernakulam District Collector.

Special train

A special type of train has been introduced on the Guntur-Tenali-Repalle section of the South Central Railway in Andhra Pradesh with facility to purchase tickets on the train itself Two such trains consisting of day type chair car coaches, vestibuled from one end to the other have been introduced in these sections from December 1989 on an experimental basis. □

Prospects of fisheries in Bihar

Dr. G. Trivedi

The author says, running water aquaculture has 10 times yield potential than that in still water. He also lists various techniques which may help in stepping up fish production of Bihar to five fold from a little over 1 lakh tonnes as at present. He feels the various steps suggested will help in stimulating the economy of the countryside.

THE MAIN CULTURE FISHERY resources of Bihar lie in ponds and tanks which are distributed throughout the length and breadth of the state. Another possible culture fishery resource is the 'Chaurs' or the flood plains especially in north Bihar. While 'Mans' reservoirs or man made lakes, rivers and canals are the state's capture fishery resources, scope for development lies in carrying out Cage and pen culture operations, especially in 'Mans' and reservoirs. Otherwise 'Mans' proper and the reservoirs are categorised as culture-based-capture-fishery resources. Fishery of rivers and canals need urgently to be conserved rather than exploited more intensively.

Bihar is known to possess a total of 95,100 hectares of ponds and tanks of variable sizes but distributed all over the state. The Government owned ponds and tanks are estimated to have an area of 70,800 hectares. These are to be used for polyculture of major Indian carps, namely 'cattle', 'rohu', and 'mrigal' combined, wherever possible, with the now available exotic carps, viz. silver carp, grass carp and common carps. Polyculture of six species is termed composite Fish culture.

Strategies

These kinds of developmental strategies can be adopted namely: (1) extensive system, (2) semi-intensive system and (3) intensive system. In the extensive system, stocking is the only input whereas in the semi-intensive and intensive systems, the pond waters need to be manured and fertilized and fish artificially fed. This helps in raising the production, depending upon the rates of application of inputs within limits. An extensive system has the potential of 600 kg hectare year, semi-intensive 2,500 kg/ha/yr and intensive about 6,000 kg/ha/yr. Theoretically, an intensive system has the potential of much higher yields. It is anticipated that approximately 50% of the government vested ponds and tanks can be developed on a semi-intensive basis. All that is to be done is to lease out the ponds and tanks and the rest of development would vest in the lessee. Done in this manner, 50% of government owned ponds and tanks at the rate of 2½ tonnes/ha/yr will give a total yield of 88,500 tonnes of fish per year. Similarly, intensively cultivated 50% of the remaining government owned ponds and tanks will, at the rate of 6 tonnes/ha/yr, can give an yield of 212,400 tonnes of fish per year. Thus, about 3 lakh tonnes of production is possible annually.

The same is strategy for development in respect of 24,300 hectares of privately owned ponds and tanks which, in fact, have greater chances of better management in private hands. 50% of this category of water area, namely 12,150 hectares at the rate of 2.5 tonnes/ha can give an yield of 30,375 tonnes/ha/yr. 50% of the rest at an intensive pace of fish culture at the rate of 6 tonnes/ha/yr can give an yield of 72,900 tonnes/ha/yr. The privately owned ponds and tanks may be expected to yield altogether about 1.03 lakh tonnes of fish/yr. At present, the government owned as well as the privately owned ponds and tanks in the state have a potential of producing over 4 lakh tonnes of fish annually.

Feed

Such a development of aquaculture would need allocation of requisite amount of inorganic NPK fertilizer as well as cattle manure as well as planning for fish feeds in the form of brans, oil cakes and fish meal/soyabean meal. Also, there is need to develop hatcheries.

"Mans": Called Ox-bow lakes, these are horse-shoe shaped lakes which at one time formed parts of river meandering in the shape of loops and curves. In course of

time, with the shifting of the flow pattern of the river, the horse-shoe shaped bends are left behind. Depending upon their age and land contour in the rainy season the ox-bow lakes either get connected with the main river or remain isolated even during the rains. From the point of view of fishery development, the 'mans' are self stocking water-bodies, the source of stock being the river. Developmental strategy needs that the connection with the main river is lost, the same should be artificially restored. However, 'mans' basically are a capture fishery resource but since they are bound to get separated from the river during the major parts of the year when egress of fish to the river would be prevented, a production of 50 kg/ha/yr can be expected. The 'Mans' of Bihar have an area of 3,850 hectares which, at the rate of 50 kg/ha/yr, would give an yield of 190. tonnes/yr.

However, as stated above, cage culture and penculture operations can be developed in the shallow marginal areas. If 1% of their water spread namely, 38.5 hectare are so used, a production at the rate of 1 tonne/ha/yr can give an yield of 38.5 tonnes/yr.

Mans will thus have a productive potential of 190.6 tonnes plus 38.5 tonnes from pen & cage culture equal to 229 tonnes/yr. Here again in the pens and cages, apart from stocking, the fish have to be fed artificially but the water need not be manured and fertilized. Hence planning for the development of the 'Mans' of Bihar would need allocation of fish feeds in the form of brans, oil cakes and flesh meal/soyabean meal

"Chaur": These are the flood plains of north Bihar where vast areas remain water logged during major part the year and little agriculture is possible. Such areas can be considered exclusively for fishery development with no competition for land use. Bihar is estimated to have 40,000 hectares of "Chaur" land. The strategy for the development of "Chaurs" would lie in contour bunding and partitioning water areas into 1-10 hectare plots which can be developed on the basis of the capture fisheries, semi-intensive and intensive culture systems of aquaculture. The contribution of "Chaurs" to the fisheries of Bihar can be of the order of 85,200 tonnes/yr.

Rich potential

For the aquaculture development of the "Chaurs" of Bihar one may look at the inspiring development of the fisheries of Krishna and West Godavari districts of Andhra Pradesh where agriculturists have wholesale turned aquaculturists. This had made a sizeable difference in the fish production in the state of Andhra Pradesh. In Andhra Pradesh, the entire development has been engineered by the private sector who have converted paddy fields into fish ponds. In Bihar however, as stated above, on account of the large water spread area, contour bunding has to be done by the state government, in the 8th five year plan and the partitioned areas to be leased out. Such areas being located in the low lands are likely to retain water during the greater part of the year. However, the possibility of having shallow tube wells to top up water to a required depth of about two metres should not be lost sight off.

"Reservoirs": Bihar is estimated to have 62,000 hectares of water spread in the form of man-made lakes. These waters all over the world are developed on the basis of culture based capture fisheries which implies only stocking but no fertilization and feeding. However, in the absence of any planned development of the fisheries of Indian reservoirs which requires changing wholesale reservoir fish population in the construction phase of the reservoir itself, no sizable gain in fish production can be expected later. The reason is that trash fish and predatory fish have become dominant in majority of the Indian reservoirs barring exceptions (Stanley reservoir in Tamil Nadu, among others is, an exception). In vast majority of the Indian reservoirs there is, little that can be done to save the situation except to selectively exploit the predatory fish so that the population structure of the reservoir changes in favour of the more desirable fish. However, an average production of 10 kg/ha/yr. can be expected from the reservoirs of Bihar. This for a water spread area of 62,000 hectares of reservoirs amounts to only 620 tonnes/yr.

Pen culture can be carried out in 0.1% of the reservoir area which = 1 t/ha can give an yield of 62 t/yr.

Phased development

"Rivers and canals": Bihar is estimated to have a 3,200 kilometres of rivers and irrigation canals. The estimated production is 1 tonne/mile length of river stretch. Judged on this basis, rivers and canals of the state can be expected to produce only about 2000 tonnes of fish per year The present fish production of the state is estimated at a little over 1 lakh tonnes, as against this by the development processes described above a production of about 5 lakh tonnes of fish can be achieved. A phased development of the fisheries development of Bihar on year to year basis providing for inputs can be prepared on the above basis.

Other aspects of fishery development could be in the following directions :

— Special fish farms in the districts.

FFDA : The state already has an infrastructure of Fish Farms Development Agencies, which in principal arrange supply of inputs and impart training in fish culture to members of fishermen communities. There are 28 FFDA in the state. It is felt desirable that one FFDA be established in each of the 39 districts of the state.

At present, almost every district of the state has a small fish farm (1.5-2 ha) comprising nurseries, rearing ponds and stocking ponds. It is suggested that each district should have under government control at least one 10 hectare fish farm also incorporating therein a hatchery. Such a farm would serve the purpose of imparting practical training in aquaculture, fish breeding, nursery, rearing etc. in addition to serving as a demonstration farm. Integrated aquaculture with horticulture, duckery, piggery and poultry as well as with sericulture should also be carried out in such farms

New pastures

Paddy-cum-fish culture : Paddy fields which holds waters for at least six months in a year should be utilised for paddy cum fish culture. Fishes like minor carps, common carps and air breathing fishes can be systematically stocked in the paddy fields. The paddy fields themselves would have to be slightly modified by providing peripheral or centrally located trenches where fish can take shelter in the eventuality of shortage of water.

Integrated aquaculture : It is known that aquaculture and poultry rearing and pig farming as well as silk worm rearing are compatible vocation. It is felt that in every district such synergistic farms incorporating the principle of integrated aquaculture with sericulture and animal husbandry be established running into about 10 hectares each. The benefit of establishing such a system would be production of fish at a greatly reduced cost since animal excreta would be readily available directly as droppings to manure the water, greatly enhancing its biological productivity. In the same farm pond embankments can be used for horticulture as well as for production of berseem, para grass etc. to serve as feed for the grass carp. Solar energy as well as wind energy can be made use of to provide some source of energy for the farm. The district level 10 ha. farm may be converted into integrated aquaculture farms incorporating elements of horticulture, sericulture, poultry rearing and animal husbandry.

Highly lucrative

Running water Fish culture : The state has a network of irrigation canals criss crossing the country side. In the whole state some suitable sites can be located where irrigation authorities would permit short distance diversion of water, say 500 metre long by canals ultimately joining the parent canal at some distance downstream. If necessary such a diversion canal can be lined with polythine to prevent loss of water through seapage. The begining and end of the diversion canal ought to have sluice gates to control ingress and egress of fish. In such a diversion canal running water aquaculture which has the potential of at least 10 times higher than still water aquaculture can be envisaged.

Fish Marketing : Fish is a highly perishable commodity. Ice should be plentifully available at all fish handling stations and fish markets should have [illegible] fish holds and fish for sale should be displayed in refrigerated show cases.

Research Problems :

(i) Inexpensive balanced fish feeds for hatchlings, fry fingerlings and larger fish should be investigated into, so that monoculture can be developed. Polyculture basically is an extensive system but monoculture can greatly enhance per hectare per year provided feeds for each species are known.
(ii) Fish breeding of individual species by hormone injections should be made 100% sure. At present it is only 50-60% sure.
iii) Live fish food organism culture to economise aquaculture operation should be developed.
iv) Genetic improvement of each cultivated fish should be done so to incorporate desirable traits of more flesh and less bone & higher protein content.
v) Selective methods to capture predatory fish should be developed. □

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Indonesian Railway Engineers & Managers to be trained in India

The Rail India Technical and Economic Services Limited (RITES), a Public Sector Undertaking under the Ministry of Railways, has been awarded a contract to train senior engineers and managers of the Indonesian State Railways, under the World Bank Technical Assistance Programme. The training will provide a comparative overview of methods of construction, inspection and maintenance of bridges on railways, including techniques and equipment used under diverse operating and environmental conditions with emphasis on metallic bridges. Over 1,400 personnel of 31 countries, including Bangladesh, Burma, Egypt, Iraq, Ghana, Jordon, Kenya, Nigeria, Malaysia, Korea, Sudan, Zambia, Zimbabwe, have so far benefited from such training programmes in India.

Besides, RITES has also trained thousands of such personnel in the host countries. RITES has organised a large number of comprehensive and well-structured training programmes funded by International bodies such as the World Bank, Asian Development Bank, Commonwealth Secretariat, UNDP, Canadian International Development Agency etc. relevant to different modes of transport. □

Cash compensatory support on 25 export items

With a view to boosting exports of plastic goods, Agricultural Products and Processed Food items, Engineering Goods and Chemicals and Allied Products, Government has announced grant of Cash Compensatory Support (CCS) on 25 export items. These include Tea processing machinery, rail coaches, biscuit making machinery, pressure cookers, dairy machinery, pineapple/mango juice, straw berry jam/rasp berry jam, cashew kernels roasted and/or salted in consumer packs, cut flowers and live plants, Sodium sulphate, methyle acrylate, plastic electrical accessories and baby disposable diapers. The rates of CCS range between 5 to 22%. CCS is given to selected export items with a view to compensate for certain disadvantages like unrefunded indirect taxes, freight disadvantages and product/market development costs, etc. The CCS will be available on exports of these items effected in pursuance of offers/orders/contracts received and finalised on or after 5th January, 1990 and will be valid upto 31st March, 1992.

Book Review

Human Resource Development and Productivity: New Perspectives—Dr. G.K. Suri Published by National Productivity Council, New Delhi PP 203 Rs. 75/-.

In recent times many new approaches to the study of human element in organisations have emerged. People are viewed as the most valuable resource of an organisation. The role of leaderships, the investment in training and development, the choice of staff development systems, the functioning of organisation itself are judged in terms of motivating people for higher performance. The traditional idea of personnel administration or management has now given birth to Human Resource Management and Development. It is one thing to have excellent individuals, well trained and competent for an organisation, but to keep them motivated and help them continuously grow and contribute their best to the organisation is another aspect, which is equally important if not more.

Similarly in the recent times, the concept of productivity has also received enhanced attention, especially in the past three decades. The improvements in productivity depends among other things, on updating technology, improved method of work, curbing wasteful practices and better management of human resources.

The book covers some of these aspects. The volume also delebrates on critical areas of human resource management and development in Indian context with special reference to productivity related to creation of climate, motivation, reward pattern, employees' influence on managerial decisions, work-ethics and commitment, technology management etc.

Dr. Suri, who has been Director General of National Productivity Council and has made outstanding contribution to the cause of Human Resource Development through his extensive research, consultations and training experiences, has made a good attempt to create an awareness of the vital role of Human Resource Development in promoting productivity and organisational effectiveness and in provoking further discussions on some of these issues.

Since the book consists of papers published or contributed to some national and international seminars and conferences, it does not treat the theme in a comprehensive manner.

The author has divided the book into four parts-Organising for productivity; management system and productivity; organisational structure and process to create productivity climate and productivity and labour management relations.

Inclusion of four case studies – one in each part has helped in promoting an analytical understanding of and interest in some of the vital issues, especially at the level of an organisation and studies in productivity.

The book is of interest to scholars and policy makers and trade union leaders at the micro level.

S.K. Nayyar

Sociological Implications of Rural to Rural Migration: A Case Study of Rural Immigrants in Punjab, A.K. Gupta, Vohra Publishers and Distributors, Allahabad, Pp. 148, Price Rs. 100/-

Migration is a complex process symptomatic of basic economic and social changes and is associated with complex economic and psychological problems. Migration can be from rural to urban, urban to urban, urban to rural and rural to rural. Bulk of literature is available on the first two categories. The major focus of such studies, has been on industrial and other migrants who converged to big cities or metropoles. Little attention has been paid to investigate urban to rural and rural to rural migration. Migration has acquired special significance in the context of modernisation of agricultural operation in India. Because of the rapid growth of agriculture in India during the past decades, rural to rural migration has been taking place at a rapid pace and in terms of volume it dominates over all the streams of migration. The present publication examines the migratory process of farm labour in the context of their socio-economic characteristics, factors of migration, method of recruitment and relative deprivation in the agriculturally advanced state of Punjab. In this context, therefore, is a welcome addition to this area.

The content of the book are divided into seven chapters including conclusions and bibliography. The first three chapters deal with the theoretical issues associated with the problem of migration and review the contributions of different scholars. The reviewer feels that it would have been more appropriate had the author combined these three chapters into one so as to give a more comprehensive picture and to avoid duplicacy. Though the review of existing literature is quite exhaustive, but the author fails to come up with a definite conclusion and simply sums up 'many more studies are still required to understand the complexity of factors which are either causes or consequences of migration.

Chapter 4 deals with the sampling design of the study. Following the multi-stage random sampling technique, a sample of 150 seasonal migrants (SMS) 100 continuously residing migrants (CRMS), 50 local agricultural labourers and 25 local employer-farmers were selected

pur, scattered over 12 and 14 villages respectively. Various operational definitions, and concept used in the study are also discussed.

Chapter 5, the core of the book, has been further subdivided under six heads, namely, background of the migrants ; factors in migration, immigrants in the new social setting ; farmer-labourer relationships, reactions of locals towards migrants, impact of migration on the beliefs, attitudes and skill of migrants. The major influx of immigrants in the operational area occured after 1975. The majority of them have come directly from Bihar and Uttar Pradesh with the help of their network and are directly engaged by the owner farmers. But still they are exploited by traders and commission agents, paid less wages than the committed ones and wages of seasonal and continuously residing migrants vary. CRMS were better off economically than SMs though the latter prefered 'contract labour system' because they felt that in this system they had an element of freedom which other system did not provide. That's why contract labourer (either on daily or monthly basis) are kept under strict control and surveillance.

Both pull and push factors stimulated migration. Among pull factors, both categories of immigrants highlighted better employment, wages, job security and food as the contributing factors for their immigrations to Punjab. Push factors prompting their migration were identified as unemployment and/or under employment, low wages, poverty and indebtedness at native places. It is the economic factors like higher wages coupled with regular and assured employment at the place of destination which were more effective in the beginning. The social factors such as the network of co-villagers and caste members were more influential in sustaining their stay at the later stages : To most of the immigrants, both Punjab and its culture, were still alien. They did not look like well adjusted in their new social milieu.

The study has established the symbotic effect of technological innovation of Punjab as majority of immigrants have gained sufficient knowledge in intensive agriculture and handling of farm equipments and machinery. It is a different thing, however that were not able to use these skill and knowledge at home due to overall backwardness of the agricultural sector in their native villages.

The study reveals that wages of immigrants were lower than their Punjabi counterpart as a consequence a feeling of relative deprivation was prevalent more among CRMS than SMs. The employer-farmers, however, compensate the lower wages by providing them food, shelter, clothing and medical facilities. However, with the acquisition of better skills, the immigrants had started demanding equal and in certain cases even higher wages than the locals.

Last chapter contains the gist of the whole exercise. The author concludes that the migration process of agricultural labourers influenced the rural socio-economic structure of Punjab as well as that of the immigrants native places, both negatively and positively. The major positive effect of the influx of immigrant agricultural labourers was seen in the minimization of the chronic during peak periods. The negative impact of migration was highlighted by the tension created among the local farm workers due to curtailment of their employment opportunities and the containment of their wages. But it is feared that a stage might come soon when immigration of farm workers attains such an alarming magnitude that it endangers the legitimate socio-economic interests of local farm workers. It might then convert the present latent tensions into an overt conflict. In that situation, a variety of problems relating to deprivation, social tensions and adjustment may arise in the rural areas of Punjab.

No doubt, the book is a welcome addition but exhibits a casual write up and fails to sustain the readers' interest. It does not throw up any new insights into the problem nor suggest any strategy. There are also a number of loose statements. Socio-economic backgrounds have been discussed under the subheading factors in migration. The book could have been reduced to half of its present size had the author worked more on the language, presentation of Tables and also avoided monotonous discussion which he presents by reproducing Table figures in the text. Nevertheless, the book, as hoped, will prove to be useful to all interested in this field.

Gursharan Singh Kainth

Industrial Development in a Backward Region by S.C. Patnaik, Ashish Publishing House, New Delhi, 1988. Pages 181, Rs. 150

The book is a result of a study commissioned by Industrial Development Bank of India (IDBI) to examine factors responsible for slow growth of industrialisation in Orissa and to recommend policy measures to expedite it.

Material is presented in seven chapters with relevant statistical tables. Therein the author examines the socio-economic scenario, growth of industries in Orissa since 1970-71, problems faced and policy requirements. The author also examines critically the State policy in relation to industrialisation including that for rural industries.

Orissa is "an epitome of poverty amidst plenty of natural resources" Value added by manufacturing registered units contributed hardly 7.56 per cent of the State domestic product. More importantly, sectoral contributions to State income have remained more or less constant over 1970-71 to 1982-83. This shows poor performance of the State economy.

Modern industrial sector in Orissa is dominated by mineral based industries like iron and steel plant, ferro-manganese plant, ferro chromo plant, cement plant etc ; but the 'spread effects' of these impulses have failed to trickle down because of backwardness of the region and what may be termed as 'infrastructure gaps'. Orissa has remained one of the industrially most backward State despite the State Government's announcing its industrial policy under State Aid to Industries Act in 1968 and providing various types of tax concessions, capital subsidy, interest subsidy and power subsidy to encourage local entrepreneurs. You can take the horse to the water but can't make it drink. This is the problem. According to

the author, this has happened because tax concessions and subsidies are not properly implemented. Subsequent revisions in the Industrial Policy in 1977 and 1980 have not helped either. This malady needs to be investigated. On the contrary, according to the author, the industrial climate in the State has deteriorated over the period.

Among the factors retarding industrial growth are power shortage, shortage of technical manpower, inadequate testing facilities, poor transport and communication facilities, low productivity, low purchasing power and a virtual absence of what the author calls 'regional capital'. Industries that provide good future potential are petro chemicals, forestry, agro-based industries, drugs and pharmaceutical, and ancillaries.

The author examines in the final chapters the position concerning large and medium industries and rural industrialisation. Food and allied group constitute the largest segment with 24.6 per cent of the total number of SSI units in 1984-85. But here again, about 40 per cent of SSI units were sick or completely closed. Majority of small scale units belong to low capital investment group, and with very little access to bank loans. Hence, an umbrella organisation for providing credit, supply of raw materials, common workshop and servicing facilities and marketing of finished products is required. Even the Orissa Small Industries Service Institute (OSISI) is a 'sick' institution, calling for its restructuring and reorientation of functions.

The book gives a dismal picture to those engaged in industrial planning. Good lesson that mere lip service does not help, unless basic structural maladies are removed. A long way to go Orissa! Nevertheless, the author misses one point: whether the rich resources of Orissa are commercially exploitable That the work was completed by the author in a period of just four months and was quickly published inspite of hindrances from IDBI shows author's grip, tenacity, honesty and a professional approach. He has added an important reference work on Orissa.

S.M. Shah

(Contd. from page 4)

"Normally the reported values for concentration time of irradiation and pulse rates vary between 10-100, 10-30 minutes (in certain cases a few hours) and 0-300 pulses per minute respectively. These conditions need to be studied for the individual plant and species"

Stimulating effect

The PCSR treatment brings about changes at various stages of plant growth. The first noticeable changes occurring in germinating seeds are rapid uptake of water and increase in the number of swollen seeds, which in turn brings about early germination with higher percentage of germinated seeds over the 'control' The stimulating effect of PCSR on seed germination has been reported by the Russian researchers to the extent of an amazing 22.27 per cent and 15 per cent in cotton and rice respectively The application of PCSR has been found effective not only on seeds but also on pollen, tubers (carrots and potatoes), buds and dormant plants. In Uzbekistan USSR, when large scale experiments were conducted, it was found that in case of melons, the yield increased by 15-20 per cent and the increase in leaf area was also observed. Exposure of vegetable seeds and seedlings of cucumbers and tomatoes to PCSR increased the overall crop yield by 21.8 per cent and decreased the harvesting time. PCSR has been found to have a positive effect in increasing the growth, development and nitrogen fixation of blue-green algae.

The beneficial effects of PCSR are also reflected in the quality of the produce. PCSR affects the metabolism in such a way as to increase the sugar content of crops Tomatoes and cucumbers are reported to have a higher content of Vitamin-C, potatoes have more starch and there is a larger accumulation of sugar in beets. An increase in the amino-acids content in wheat and barley as a result of PCSR on sprouts has also been observed. In the USSR, it was found that PCSR increased the fibre length of cotton by 10 per cent. It is also claimed that PCSR helps in inducing resistance to frost and diseases

Groundnut & cotton

Studies on germination and plant growth at CSMCR indicate that 10 per cent moisture level of the total water absorption capacity of cotton and groundnut seeds seems to be the most suitable. "The best irradiation conditions for cotton and groundnut were fixed, based on the germination studies carried out in a cold room maintained at 25°C using glass petri-dishes", says Dr. Gomkale. "It was felt that PCSR treatment will be most suitable for summer groundnut as it may hasten germination in the cold sowing season. Groundnut seeds of eight varieties were exposed for 10 minutes at 100 to 300 pulses/min Of these, two species viz. Punjab-1 and M-145 showed positive response regarding germination and plant growth Growth studies in case of cotton plants were conducted in pots on H-4 and H-6 varieties of seeds irradiated for 10 minutes at 75 to 300 pulses/min. Early flowering and maturation apart, the increase in yield over the 'control' was 2.8, 6.5 and 10.8 at pulse rates of 75, 150 and 300 pulses per minute respectively". Large field scale trials are planned to conclusively establish this trend. If a positive effect on crop yield is confirmed, then solar irradiators have good chance of being adopted for agricultural practices in India.

Scientists in the USSR have also found that the irradiated seeds can be stored for a period of more than three months without any adverse effects. Indian researchers have also undertaken studies on the effect of storage on irradiated seeds. If the results are favourable, the use of solar irradiators in India will have ample scope in the countryside as seeds can be treated in the months of April, May and part of June and sowed during the monsoon. Such practical utilisation of solar energy, in the final analysis, can do a world of good in heralding a second green revolution through the benign 'solar route'. □

D.K. Dixit, Deptt. of Mechanical Engineering, IIT Powai, Bombay

Bridges of friendship

The public sector Indian Railway Construction Company Limited (IRCON) under the Ministry of Railways is to supply Portable Steel Bridges to Bangladesh. It will incorporate the state-of-art technology. The export order is valued at over 2 million US dollars. The work will be executed within this year.

Economy drive

A saving in foreign exchange of over 23 crore rupees is expected following a drive initiated recently to curtail non-productive expenditure in several public sector units under the Commerce Ministry. The decision to cancel India's participation in the Universal Exposition at Seville in Spain scheduled for April-October, 1992 by the Trade Fair Authority will save about 20 crore rupees. The Seville Expo 1992 may be cancelled as it is not considered cost effective. Tea Board will save between 2 to 3 crore rupees in the economy drive which includes closing of some of its foreign offices.

Channel lining

The Planning Commission has approved the Punjab Irrigation Project Phase II Lining of Channels. It is estimated to cost about 83 crore rupees. The State Government has been asked to ensure that the works are completed as per construction schedule. The approval is subject to environmental safeguards as stipulated by the Ministry of Environment & Forests.

The Project will benefit 6.98 lakh hectares of culturable command area and will provide irrigation in 53,500 hectares of land annually. The Project envisages lining of 816 Km. long channels.

Tiger reserve

One more Tiger Reserve is to be established in the country taking the total number to 18. It will be set up in West Champaran district. It will be named as 'Valmiki Tiger Reserve'. It will be about 320 km. from Patna. It will be spread out in an area of about 840 sq. kms. The site is near the famous Chitavan National Park in Nepal. The legal status of the area at present is that of Wildlife Sanctuary. As per 1989 Census the estimated number of tigers in the area is 81 and 32 leopards. The other notable wild animals of the sanctuary are – hyena, wolf, jackal, wild dog, sloth bear and gaur. With the establishment of this 18th Tiger Reserve, the over-all area under Project Tiger is about 28070 sq. kms. The Project Tiger was launched in 1973 at Corbett National Park (U.P.).

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Yojana 33 years ago: March 10, 1957

India is a democracy – the largest in the world. Our aim consequently has been to fulfil three conditions all democracies must fulfil: to have a government of the people for the people and by the people. Of these three, we have fulfilled the first two in good measure. For the second time in ten years of freedom we are exercising our right to choose the administration we like; our government is therefore of the people. Since the main task of the administration has been to raise the standard of living of the masses along the lines indicated by the Five Year Plans, it is also a government for the people. It is only in fulfilling the third requirement that we have been tardy. Our administration cannot be described as a government by the people if all that they do is to elect representatives to the State legislatures and the Parliament. The democratic process must begin with the village and take over control at all levels thereafter – the district, state, region, right up to the Parliament. It is only then that we will be fully able to participate in the task of nation-building on which we are launched. □

This moving story comes from a remote corner of Bihar in the district of Champaran. The people about whom it is belong to a neglected and almost forgotten tribe, the Tharu. This group of 24 villages in the Done area was cut off from the rest of the world for the monsoon months when little rivulets swelled to enormous sizes and the rough jungle tracks were lost in a swirl of muddy water. Then there was no road, no rail, no telegraph, no electricity, no radio-for all practical purposes the Done and its 24 villages were dead to the world.

When the rains stopped, the Mahajan money-lenders came. Crop or no crop they had to be paid and with compound interest. Inability to do so was met by a sound beating because the Mahajans brought their retainers with them. And no one came to help against the depredations of the money-lenders or teach them how to earn more and wipe off their debts. No wonder the Tharu felt that the hand of both God and man was against them.

In July 1953 the Done area was visited by a Block Development Officer. His attempts to persuade them to shake off their despondency, build wells, roads, schools, etc., fell on deaf ears. How could they when the money-lenders had to be paid? Who could save them from the Mahajans who came every day when the B.D.O. was the first officer ever to have visited them?

The young officer realised that his only chance of success was to break the stranglehold of the money-lenders. He pitched his tent in one of the villages and waited. The Mahajans came and when they were unable to get money, proceeded to seize paddy from the homes of the peasants illegally. The B.D.O. organised the villagers in a band, led them against hired retainers of the Mahajans and drove them out. The story spread to the neighbouring villages where the emboldened peasantry invited the young B.D.O. to deliver them from their oppressors. All the Tharus were willing to eat out of his hand and do as he told them.

The B.D.O. Sirajuddin Ahmed, is now transferred to Kalyanpur in District Darbhanga. □

A consignment of 30,000 baby chicks and 24 cases of hatching eggs were airlifted to India from New York by special plane. This consignment forms part of the technical aid being given to the Poultry Programme in the second Five Year Plan through the Technical Cooperation Mission. □

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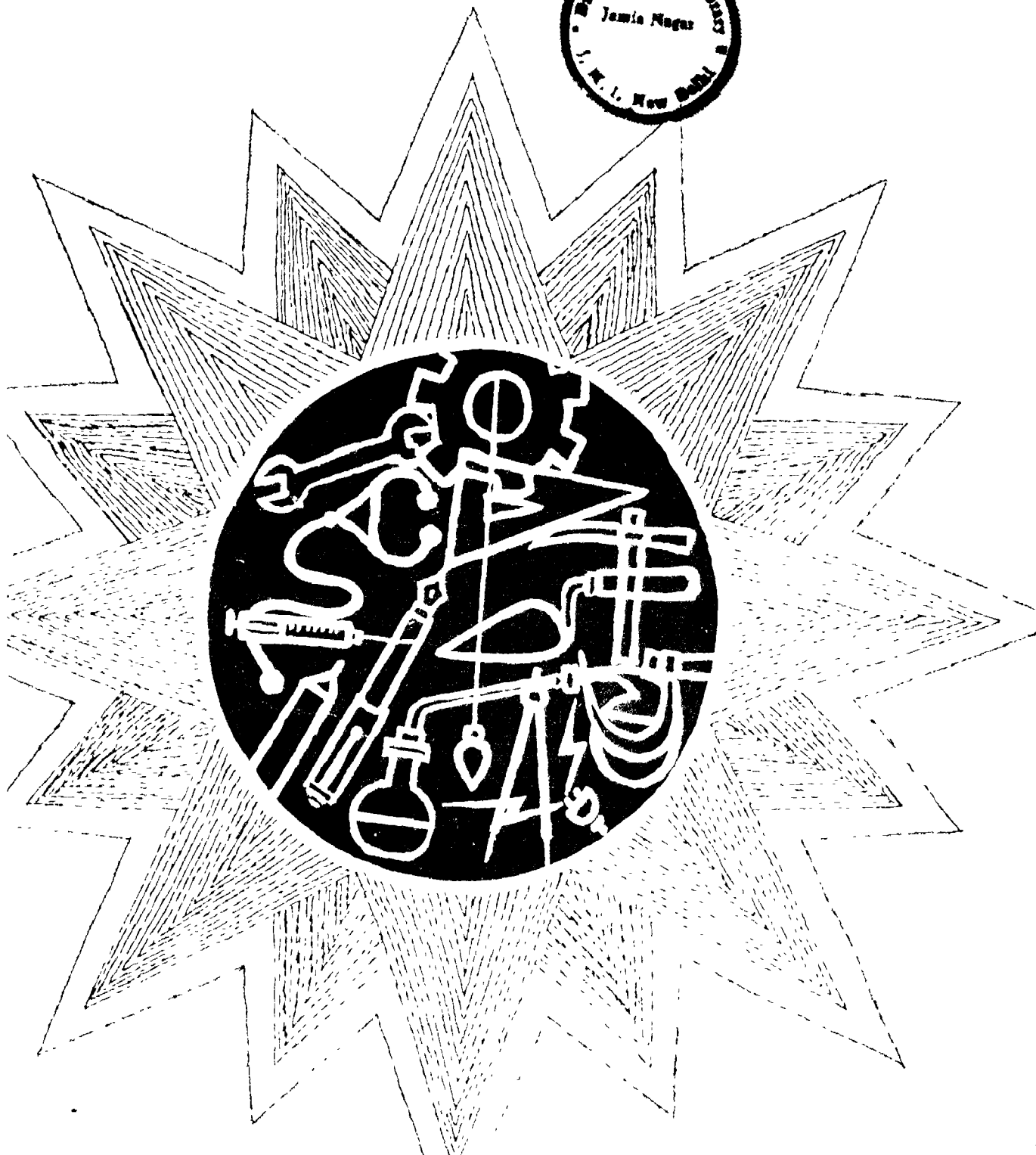
Development Diary

National leprosy eradication programme

The National Leprosy Eradication Programme (NLEP) aims at containing the disease in all known cases by the year 2000 A.D. India with an estimated *four million leprosy cases, has about one-third of the* world's leprosy population. The best resources available in terms of medical, social and human aspects are being used to eradicate this major health hazard.

There are 196 Districts in India with a leprosy prevalent rate of over five per thousand population. So far Multi Drug Treatment (MDT) facilities have been provided in 118 districts. The remaining 78 districts are proposed to be covered in the next three years. The patient response in these districts was highly favourable and over 92 per cent of the cases have taken the full course. The deformity rate among new patients has also come down. The relapse rate among MDT cured cases was less than one per cent.

Seventyfive reconstructive surgery units have been set up all over the country to provide facilities for surgical correction of the deformities caused by leprosy.

About 250 voluntary organisations are also working in close cooperation and coordination with the Government for promotion of National Leprosy Eradication Programme activities in the country.

Indo-Polish Trade

The trade turn over between India and Poland is expected to be about 795 crore of rupees this year. The exports from India will be of the order of 361 crore and imports from Poland in the region is 434 crore. This target is about 16% more than that of last year.

The main items of imports from Poland will be Sulphur, Ferrous, and non-ferrous metals, chemicals and chemical products, newsprint, machinery/services for coal industry, railway items, power equipment, diesel generating sets, machine tools, textile machinery, ship engines, equipment and services for oil drilling industry.

Among the exports from India to Poland will be bulk tea, deoiled cakes, pepper, cotton textiles (including cotton yarn), raw jute and jute goods, finished leather, a number of engineering items such as textile machinery, machine tools, surgical and medical instruments, electrical equipment/components. and electronic components.

New items added in the list of imports from Poland include metal scrap and pig iron. The new export items include disposable diapers, gramophone records and cassettes.

The trade has been drawn up in such a way that the imports from Poland will be higher than Indian exports to Poland to correct the present imbalance in trade against Poland.

Friendship voyage

Three hundred youth leaders from Japan, India, Pakistan, Sri Lanka, Kuwait, U.A.E, Tunisia, Morocco, Italy, FRG, Egypt, Greece and Oman have embarked on a 3-month friendship tour this year under the 'Ship for World Youth' programme of Japan. The voyage would cover Singapore, Bombay, Alexandria (Egypt), Piraieves (Hellanic Republic) and Muscat before finally terminating at Tokyo on 28th March 1990. The purpose of the 'Ship for World Youth' programme is to promote mutual understanding, friendship and international outlook among youth of Japan and other parts of the world. This objective is proposed to be achieved through participation in various exchange activities and discussions on board the ship and also during their stay in the visiting countries.

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Strengthening public distribution system

Dr. I. Satya Sundaram

The numerical growth of fair price shops has not made the PDS a cent per cent success. What are the weaknesses and deficiencies of the system? What are the bottlenecks on its way? These issues are analysed by the author in this article. The PDS is a Consumer Oriented System and as such public involvement in vigilance work at grassroots level is a must to run the system successfully, the author affirms.

THE ROLE OF THE PUBLIC distribution system (PDS) has undergone change during the last four decades. Earlier, the PDS was viewed as a mechanism to mitigate misery caused by shortages. At present, it is considered to be a conduit to achieve national objectives like growth with stability, social justice and improvement in the consumption standards of the vulnerable sections of society. The PDS has emerged as an anti-inflationary measure in a climate of uncertainty of foodgrain output.

While the Central government has taken up the responsibility of procuring, storing, allocating and transporting foodgrains to godowns for the PDS, the state governments and the Union Territory administrations have to ensure uninterrupted supply of essential items to consumers through a network of fair price shops.

It is the responsibility of the Government to ensure reasonable price stability in the interest of the nation, particularly for the benefit of the weaker sections. The Government has been trying to achieve this objective through the instruments of direct subsidies or price controls. These measures are generally resented to by businessmen as they fear that they would deprive them of a fair return on investment. How to help the weaker sections without harming the producers and traders is the dilemma facing the Government.

It is in this context that the Programme Evaluation Organisation (PEO) of the Planning Commission had suggested, in its Study made in 1985, a dual pricing policy in respect of all commodities made available through fair price shops. Most prestigious companies of the day do not utilise their technologies and managerial skills towards provision of low cost product or service to the society. It should therefore be made obligatory on the part of a company to produce at least one low cost brand.

The total foodgrain output may be of the order of 173 million tonnes during the current year, 1989-90, as against 170 million tonnes in 1988-89. Yet, the level of stock of foodgrain has been coming down in recent years. In March 1984, the Government expressed its desire to maintain a buffer stock of 10 million tonnes. This buffer stock would be over and above the operational stocks which may range between 11.4 million tonnes on July 1 to 6.5 million tonnes on April 1. Of course, the adverse situation in respect of food stocks is mainly due to reduced procurement (13.42 million tonnes) and foodgrain output (138.41 million tonnes) in 1987-88.

Present position

A disturbing development in recent years has been the dwindling buffer stock which stood at 23.6 million tonnes at the end of 1986. This declined to 21 million tonnes by July 1987 and further to 14.14 million tonnes by December-end 1987. By mid-March 1988, it further declined to 9.18 million tonnes. Under the present circumstances, buffer stock falling below 10 million tonnes should be viewed with alarm.

The declining trend in buffer stock is not only due to higher off take of foodgrains from the PDS, but equally due to fall in procurement of foodgrains by the public sector agencies. The drought conditions in 1987 too contributed to this worsening situation. It may however be noted that the country is able to withstand a drought without depending upon food imports only because of buffer stock which provides a cushion between good and bad years.

The country is now having an enlarged PDS which caters to the needs of the population, especially those living in rural, backward, tribal and remote areas. The number of fair price shops in the country steadily increased from 2.39 lakhs in 1979 to 3.40 lakhs at present. About 80 per cent of these are in rural areas.

Transporting foodgrains to hilly, tribal and inaccessible areas is a difficult task. The PDS has to depend on mobile fair price shops to serve these areas. The Central Government has been providing financial assistance to states to purchase vans for the PDS. To ensure fair quality of items supplied through PDS, a joint inspection system for wheat, rice and sugar at the time of lifting from Food Corporation of India has been evolved.

In areas having humid climate, the Central Government, by entirely subsidising packaging, has ensured supply of iodised salt and levy sugar in small packs. In recent years, the PDS has been viewed as an instrument of poverty alleviation. Thus, to those living in integrated tribal development project areas, wheat and rice are supplied at a specially subsidised rate. Also, the Government has been organising training programmes for the personnel associated with PDS with a view to upgrading their managerial skills and reorienting their attitudes.

The performance of PDS has not been uniform throughout the country. In some states, the administration has been weak, corrupt and unresponsive to public needs. In these states, the deficiencies noticed include huge shortages in stocks particularly in respect of palmolein, rice, sugar and kerosene and also fake supply entries in family cards with a view to diverting commodities for sale to the open market.

Suggestions

In a study (sponsored by the Ministry of Food and Civil Supplies) conducted by the Indian Institute of Public Administration, New Delhi in 1987, it has been pointed out that the PDS becomes less effective because of seasonal pattern of offtake in some of the states. There are month to month fluctuations in PDS offtake. According to the study, the number of fair price shops, their location, periodicity of permitted purchases, behaviour of the dealer, long queues, unsatisfactory quality and fear of incorrect weighing erode the credibility of the PDS. To make PDS popular, the study suggested that it should cover coarse grains and supply them with a price advantage when compared to the market.

The PEO study in 1985 relating to 11 commodities pointed out that the PDS suffers from irregular supply and poor quality of commodities made available through fair price shops. In case of almost all the commodities the incidence of not lifting of sanctioned quotas by fair price shopkeepers was observed to be higher in rural as compared to urban areas. As a result of poor quality especially in respect of rice and wheat, there has been low off-take of these cereals from fair price shops by beneficiary households.

The study also revealed that easy availability in the market of some commodities like rapeseed oil, wheat flour, palm oil, rice and wheat is another reason for not lifting these commodities especially in rural areas.

The study further revealed considerable delay in supplying commodities to shopkeepers. It observed that 49 per cent of the total selected shopkeepers had to make more than one visit per month for lifting their monthly quota of different commodities. Most of them felt that running of fair price shops was not profitable. The reasons given for this include low rate of commission, high cost of overheads, underweighing at the warehouse supply points and poor quality of commodities supplied leading to unsold stocks.

The study however pointed out that the weakness and deficiencies of the PDS do not consist in either the lack of sufficient coverage or want of necessary administrative machinery but in certain inadequacies in its operational aspects and the degree of coordination required.

Rural cooperatives

It is true that 80 per cent of fair price shops are in rural areas. However, the working of PDS in these areas is far from satisfactory, particularly in remote and inaccessible areas. As a result of the mischief played by middlemen, there has been diversion of good quality items to open market, while fair price shops keep poor quality foodgrains and other items.

We have to assign an enlarged role to the rural consumer cooperatives. Consumer goods routed through cooperatives are at present valued at Rs. 3,000 crores a year, sales being accounted for equally by the rural and urban cooperatives. Consumer cooperatives cover about 40 per cent of the fair price shops. Consumer cooperatives handle a number of items like foodgrains, groceries, oil, textiles, cosmetics, toiletories, household/electrical/electronic travel goods, vegetables, medicines, cooking gas, petrol/diesel, novelties, footwear and stationery. However, the consumer cooperative movement is weak in the North Eastern states, Rajasthan and Jammu & Kashmir.

The primary agricultural service cooperative face a number of problems : the range of articles being offered for sale is minimal ; the supply line is often irregular and counter service remains poor. They do not get proper support from higher tier organisations in respect of bulk procurement, packaging and transportation, easy credit and convenient deliveries. There is therefore need for strengthening the village level cooperative shops by increasing the range of articles for sale in order to meet most of the needs of an average rural household, ensuring timely, uninterrupted and cost effective supplies and by integrating the consumer business of the primary agricultural service cooperatives with the other agriculture related operations of credit, farm input supplies, extension, storage and marketing of agricultural produce.

It is also necessary to do away with multiplicity of organisations in the wholesale business, as multiplicity has often resulted in overlapping of functions, failure to derive the economies of scale and higher administrative and related operating costs. A few measures may be taken to improve the motivation of the personnel manning village level cooperatives.

Strengthening PDS

The PDS is a consumer oriented system and as such it cannot be run successfully unless the public is involved in vigilance work at the grassroots. Some states have not shown positive interest in the constitution of watchdog panels at the shop level.

The PDS is also greatly handicapped by the presence of bogus ration cards. In some states, the menace of bogus cards has been eliminated to a large extent, by insisting on two attested photographs—one for pasting on the ration card and other for keeping in government records.

The PEO study made certain suggestions for improving the efficiency and performance of the PDS. These include :

(i) the food and civil supplies departments in the states should not take staff on deputation from other departments. The association of revenue officials with the implementation of the programme should be eschewed ;

(ii) computerisation of the distribution mechanism at the all-India and state levels could be resorted to, to minimise delay and to make essential commodities available to fair price shops in time and at prescribed frequencies ,

(contd. on page 27)

Public distribution system : role of State food and civil supplies corporations

Prof. Atmanand

Through a review of the major features of the PDS in India and the performance of the Bihar State Food & Civil Supplies Corporation, the author in this article brings home to the readers the need for reorienting the objectives of the State Food & Civil Supplies Corporations into full fledged marketing organisations so that these can make a major contribution towards strengthening consumer movement and providing satisfaction through the successful functioning of the PDS.

A PUBLIC DISTRIBUTION SYSTEM Is the whole or a part of the distribution system in principle owned and controlled by the public authorities on behalf of the general public and run by them for the good of the general public or a specific group thereof.

Basically, Public Distribution is an aspect of the demand and supply management. Its aim is to meet the basic needs of the vulnerable sections of the communit, who cannot afford to depend upon the market forces to obtain their supplies. Public distribution is direct "State intervention in public affairs" Public distribution by its very nature encompasses generally items of mass consumption such as foodgrains, sugar, kerosene, cloth, washing soap, tea, coffee, match box, soft coke, candles, exercise note books etc

The concept of Public Distribution System in India has some specific connotations. It is not a system of distribution under public ownership as in the case of many socialist countries, nor is it an independent system of consumer cooperation of the type found in scandinavian countries The Public Distribution System in India is a retailing system supervised and guided by the state

The basic objective of the Public Distribution System in India is to ensure the distribution of essential commodities to the common man at reasonable prices. After examination of a number of alternatives as regards the distribution system, the 'Dharia Committee on Essential Commodities and Articles of Mass Consumption' came to the conclusion that long term strategy for supply of essential commodities and articles to the common man at reasonable prices has to be centred on the creation of an adequate public procurement and distribution system. The efficiency and efficacy of the Public Distribution System should, therefore, gear itself towards the fulfilment of the basic objective of ensuring satisfactory, adequate and continuing arrangements for the distribution of essential mass consumption goods at reasonable and fair price to the vulnerable and weaker sections of the society in urban and rural areas.

It must be appreciated that the system is not merely a regulatory measure. It is an extension of the philosophy of participation of public authorities and organisations in matters of broader public interest in response to the changing requirements of the society globally The organisational involvement in the Public Distribution System presents an ideal instance of management of inter linkage amongst a number of organisations in the private, public and cooperative sectors, under the overall direction and control of the Ministry of Civil Supplies at the Central and State levels. The coordination between the centre and the states is an added feature of this mechanism

While fully realising the basic need for having Public Distribution System, it would be worthwhile to examine the major feature of its operation, and in particular the role of Civil Supplies Corporations which have been set up in several states in order to strengthen the functioning of the system. The focus on these operations is highly relevant as the basic purpose of having them is to bring in increased efficiency in the system and also to provide additional services to consumers, especially the most needy ones.

The main objectives of a Civil Supplies Corporation are essentially the same as the Department of Food and Civil supplies in respect of supporting the Public Distribution System : for instance, "To engage in, promote improve, develop, counsel and finance, production purchase, storage, processing movement, transport, distribution and sale of food grains, food stuffs and any other article whether declared essential or not and provide services and assistance of all kinds for the said purpose including capital, credit, means, resources and technica

activity regarding Civil Supplies as directed by the State Government from time to time and also to take such measures as the Company may think fit for strengthening the consumer movement."

The articles of association would normally include incidental objectives or ancillary to the attainment of the main objectives, a long list of activities in case need arises for expanding or diversifying into any of these. The list of such activities may be very comprehensive. In the case of Bihar State Food And Civil Supplies Corporation Limited, it runs into fourty paras. Our main concern, however, will be with the main objectives of the Corporation.

The Bihar State Food And Civil Supplies Corporation was set up on 2nd April, 1973 by the Companies Act, 1956 for the attainment of broader objective of the Public Distribution System. The basic function of the Corporation is the procurement and storage of foodgrains at reasonable prices for the farmers, wholesale traders etc. and also to distribute them among the Consumers through the net work of the Public Distribution System.

Since the time of its establishment in 1973 the performance of the Corporation in various directions of trade activities has not been satisfactory. When we consider the total sale of the Corporation over the last twelve years, the picture is somewhat disturbing. The total sales of the Corporation increased from Rs. 1998 78 lakhs to Rs. 16656.48 lakhs excepting the year 1981-82 in which it dramatically came down to Rs 7744 20 lakhs. The rapid decline in the total sales of the Corporation has been due to steep fall in foodgrains prices over which the Corporation has no control.

If we consider interest and profit/loss as another indicator of financial performance of the Corporation it has not been able to reach the targets. As it is obvious, the activities of the Corporation are being performed on the basis of loans sanctioned by the banks and the government which usually charge very high interest from 14% to 18%. As a result, a major share of the total profit of the Corporation is spent over the payment of interest to the banks. Since 1973-74 the total interest increased quite rapidly. In the year 1973-74 only Rs. 10.30 lakhs were spent on the payment of interest which increased quite rapidly to the level of Rs. 685.66 lakhs in 1985-86 The Corporation is a service oriented enterprise whose basic function is to procure and distribute the foodgrains and other essential commodities to the large number of consumers at reasonable prices. It is therefore, argued by the Corporation that since the entire sale has to be made at a pre-determined price then, naturally, the merging of the total profit will be low and more so a major chunk of the total profit of the Corporation is utilised for making payments of interest. The total loss to the Corporation in 1973-74 was Rs. 14.84 lakh which increased to the level of Rs. 581.10 lakhs in the year 1985-86. However, the same has earned the profit of Rs. 106.92 lakhs in 1979-80 which fell down to Rs. 86.23 lakhs in 1983-84.

The procurement and distribution of essential foodgrains is another important activity of the Corporation. journey from procurement centre to consumers. It passes through series of operations involving multiple handling by various agencies before it reaches fair price shops and consumers. The procurement of foodgrains is designed and planned to serve both the consumers and farmers. It helps higher production, equitable distribution and stable prices. There are three important sources through which the procurement of foodgrains items is done by the Corporation They are :(1) purchase of wheat and rice at the determined price from the farmers under the given policy of the Government ; (2) recovery of levy from farmers, mill owners and whole sale traders and (3) procurement of foodgrains from the Food Corporation of India under the scheme of Public Distribution System.

When the support price is announced by the Central Government, the Corporation is entitled to purchase foodgrains from the farmers. In order to facilitate the purchase activities, a large number of purchase centres are set up in various markets of the state. The farmers are motivated to sell their produce at that price in those centres and thereby the process of procuring foodgrains is strengthened. For this purpose the Corporation provides the maximum facilities of transportation like payment of transportation costs etc. and the appointment of transport officers at the district levels for transporting foodgrains from one place to another The trend of procurement of rice and wheat by the Corporation from 1973-74 to 1984-85 is given in the table:

Table 1

Trend of Procurement of Rice and Wheat by Bihar State Food & Civil Supplies Corporation

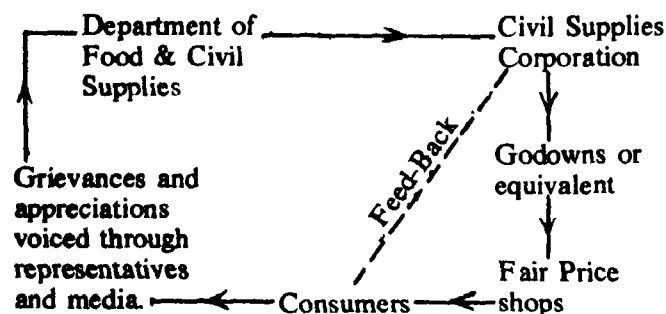
(in 1000 tonnes)

Year	Rice	Wheat	Total
1973-74	56880 2	46951.6	103831 8
1974-75	62054 1	1865 0	63919.1
1975 76	60079 0	52130.1	112209.1
1976-77	43205 6	180935 8	144141.4
1977-78	1931 2	11249.4	19188 6
1978-79	12171 8	29202.8	41374.6
1979-80	Nil	87896 6	87896.6
1980-81	65273 5	5671 4	70944 9
1981-82	46950 6	12400 6	59351 2
1982-83	3559 7	15496 2	19065 9
1983-84	34516 7	19750.7	54267 4
1984-85	30780 9	43414 0	74194 9

Thus, the review of the performance of the Bihar State Food & Civil Supplies Corporation motivates us to consider some of the basic issues which may be stated to help in taking an analytical approach in respect of the establishment of Civil Supplies Corporation and its functioning.

The Central issue which Civil Supplies Corporation has to face is whether it is merely procurement and physical distribution agency or it is prepared and geared for developing a marketing orientation and outlook. There is a substantial difference between the two. Restricting the management objectives to allocation and physical

approach may appear simple and convenient. However, the job of the Corporation is not completed when supplies of stocks are made available at the godowns or even at fair price shops. Sensitivity to consumer needs and convenience can be developed only if Corporation considers itself via media of providing and enhancing consumer satisfaction and not merely meeting their needs for essential goods. As pointed out above, needs are relative and subject to change.

We should, therefore, propose the consideration of the following interactive model which allows for response and feed back links.

The above model reveals that the Civil Supplies Corporation is not merely a procurement and distribution agency. The major objective of the Corporation is strengthening consumer movement and providing consumer satisfaction by making free availability of essential goods.

The other important issue regarding the operational aspect of the Corporation is that it should develop a control mechanism in such a way that all fair price shops in the state sell goods at the same prices. This will bring uniformity in the level of prices charged by Fair Price Shops. In this way, any kind of exploitation or harassment by Fair Price Shops can be immediately mitigated.

The number of Fair Price Shops will no longer be a performance indicator once it keeps pace with the required norms according to population and location criteria. We have to look beyond the current operation characteristics to see how value addition can be conti nuously built into the System in the context of provisio of stocks to retailers. There are certain factors such a availability at godowns, proper quality of goods supplie and streamlining of administrative procedures which ar largely within the domain of Civil Supplies Corporatio It may be necessary to go one step further to me financing needs of deserving and needy shop-keepers s that this factor does not come in the way of the replenishing their stocks.

Procurement and purchasing programmes of Civ Supplies Corporation are an important and at time critical part of their total operation. This obvious requires skill in the purchasing function when supplies ar being obtained for non-governmental agencies or directl from growers. It must be appreciated that marketir orientation of Corporation as strongly recommended wi be of considerable help to it in bringing continue efficiency and cost saving in their purchasing activi too. Receptivity to environment and keeping aware market trends will be instrumental in avoiding possible p falls. In fact, the psychological proximity to markets is distinct advantage for a Corporation as compared with government department. Furthermore, an active Corpo ration can provide facilities or help in creating conduciv conditions for producing/processing products it is dea ing in or may be planning to diversify into. The articles association of Civil Supplies Corporation provide fo such objectives and, therefore, they should not remain dead horse.

Summing up, the State Food and Civil Suppli Corporation should orient themselves, rather conve themselves into full-fledged marketing organisation. Pu chasing and procurement which is an important part its activities will also have the benefit of profession outlook with the recommended reorientation. Unlike t departmental system, Corporation should not ove emphasise its allocative authority and distributive responsibility.

Table 2
Bihar State Food & Civil Supplies Corporation
Performance at a Glance

(Rs in Lakhs)

Years	Sales	Interest	Profit/Loss	Total Debt	Purchase
1973-74	1998 78	10 30	14 84	349 62	2578 08
1974-75	9281 72	111 03	58 67	1452 78	9374 80
1975-76	7375 34	126 46	-22 40	1227 06	6760 18
1976-77	5433 60	103.99	-49 94	43 55	4158 69
1977-78	7512 86	110 99	- 19 17	128 61	6[illegible]20 16
1978-79	5289 77	94 01	- 55 23	576 [illegible]	[illegible]
1979-80	9198 82	163 95	106 92	788 12	8390 41
1980-81	10700 71	201 63	50 17	1945 69	10549 34
1981-82	7744 20	203 37	40 44	2365 85	8090 05
1982-83	13010 43	319 68	60 94	2594 58	11247 52
1983-84	16656 48	418 45	86 23	3498 04	15485.53
1984-85	6807 25	516 93	- 678 09	4035 45	6936 61
1985-86	7123 21	685 66	-581 10	4418 00	4857 42
1986-87	10143 64	583 03	- 168 03	3915 87	8977 43

Source Annual Report, Bihar State Food & Civil Supplied Corporation Ltd, Sone Bhawan, Virchand Patel Path, Patna

(Contd. on page 1

Sickness in small industries: A case study

Dr. Mithilesh Kumar Mishra & Anup K. Karan

Sickness in small scale factories has become a common phenomenon. What are the factors responsible for this unhealthy growth of these units? What are the remedies? The authors go in great depth into these aspects in this article. All said and done, the development of entrepreneurship can be an effective solution to the problem of industrial sickness in the small sector, the authors feel.

SMALL SCALE INDUSTRIES HAVE A vital place in our developmental strategy. Their importance in employment generation, creation of wealth and dispersal of industries in urban and rural areas is immense. In Bihar more than 40,000 registered Small Scale units with fixed assets worth Rs. 240,35 crores are providing employment to 4,67,414 people and are producing goods worth 550 crores to the national output. Inspite of its importance and spread, the small scale sector is beset with the problem of "sickness". Many of them have failed to generate internal surplus on a continued basis and have depended on the infusion of external funds for survival. Presently 8,570 small scale units are lying sick in Bihar.

Inspite of giant financial organizations like Bihar State Small Scale Industries Corporation, The State Financial Corporation, Industrial Area Development Authorities at Patna-Ranchi, Bokaro, Adityapur, Muzaffarpur and Darbhanga, a network of industrial estates, Industrial Area and District Industries centres at the district level, much headway could not be made in the industrialization process of the state.

Sickness

Sickness in industrial units is a gradual process and does not develop suddenly. In the initial stages, it gets reflected in the form of defects and mistakes in the unit's functional areas like production, finance and management. Later it is observed in the form of symtoms like irregular or unsatisfactory turnover in the account, slow and unsatisfactory movement of stocks, decline in production, sales and profitability, frequent violation of terms and condition and asking for additional grants.

The term industrial sickness has been defined in a number of ways and its concept lacks uniformity. A sick industrial unit may be defined as one when it fails to generate surplus on a continuous basis and depends on frequent infusion of external funds for its survival. According to RBI, a S.I. unit should be considered so if it has "incurred cash loss in the previous accounting year and is likely to continue to incur cash loss in the current accounting year, and has an erosion on account of Cumulative cash losses to the extent of 50 per cent of those of its net worth." According to ICICI "a sick industry is one whose financial viability is threatened by adverse factors present and continuing. The adverse factor might relate to management, market fiscal burden, labour relations or any other. When the impact of those factors reaches a point where a company begins to incur cash losses leading to erosion of its funds, there is threat to its financial stability."

The sick industrial companies (special provision) Act 1985 identifies sickness in terms of cash losses for two consecutive financial years and accumulated losses equalling or exceeding the net worth of the company at the end of the second financial year.

The definition of sick SSI units has been modified as under: "A small scale industrial unit should be considered as sick if it has, at the end of any accounting year, accumulated losses equal to or exceeding 50 per cent of its peak net worth in the immediately preceding five accounting years" (Bihar Chambers of Commerce, Sep. 1989).

An analysis of all the definitions given above indicate that sickness more or less has a perfect positive correlation with profitability. Profitability alone can generate cash surpluses for an industrial unit to meet its various obligations to the creditors like financial institutions, the government and others.

Causes

The main factors responsible for sickness in small-scale industries are internal and external. Both the factors influence the operation of the industrial units. Internal factors are those which are related to capability, motivation and psychological commitment of entrepreneurs

... factors are associated with the support system that include availability of raw material, power, transport, working finance, facilities of marketing of products, infrastructural bottlenecks, unrealistic policy of public sector banks, government distribution system, under utilisation of installed capacity, lower level of productivity and rising operation cost. It has, however, been estimated that the two major factors for SSI sickness are lack of adequate and timely working capital and lack of marketing facilities. Beside these two factors, the under-utilisation of installed capacity, lower levels of productivity and rising operational cost are also squarely responsible.

In the light of the above explanation, here an attempt is made to assess the working of the Adityapur Industrial Complex and the specific problem faced by its units. For this purpose a sample of healthy, unhealthy and dead SSI units (30 each) was taken.

Adityapur industrial complex

The Government of Bihar had set up an Industrial Area Development Authority in the year 1972 at Adityapur with a view to providing the facilities for the proper growth of factories under one roof. Table 1 gives the basic characteristics of this industrial complex:

Table 1

Adityapur Industrial Area : A Highlight as on Sept. 1987.

1. Establishment of Adityapur Industrial Area Development Authority — 1972
2. Total Reserved Area 5359 miles, 33920 acres.
3. Total Acquired area for Industrial Development — 2544.06 acres
4. Total developed industrial area — 1520.36 acres.
5. Total number of alloted plots — 620
6. Total number of developed plots — 847
7. Total number of large scale industries — 06
8. Total number of medium scale industries — 12
9. Total number of small scale industries — 354.
10. Total number of small scale industries under construction — 43
11. Total number of constructed shed — 50
12. Total number shed under construction — 05
13. Cost capital in infrastructure — Rs. 487 77 lakhs
14. Cost capital in total units — Rs 786.00 lakhs.
15. Total direct investment — Rs. 9416 00 lakhs
16. Annual production capacity — Rs 12525 lakhs
17. Developed residential area — 250 acres
18. Developed industrial houses — 4600
19. Acquired Residential area — 810 acres.

Though the complex has jurisdiction over an area of 33,920 acres of land, 2400 acres of land have been earmarked for the establishment of small, medium and large scale industries and the remaining for housing, shoping centres etc. In all, 372 industries have been setup, out of which 6 are in large scale, 12 in medium scale and 354 in SSI sector More and more SSI are at various stages of construction. The complex provides developed land to industries with all infrastructure facilities such as power, water, road, surface drain housing, finance, availability of raw materials, marketing, technical knowhow etc. Majority of the units are financed by the local commercial institutions. The banks advanced finance for working and fixed capital. Very few are in vary from automobile industries to machining job, rubber and foam products, cement works, pharmaceutical, chemicals, wooden, structural and mechanical fabrication, foundary and steel melting, refractory works, electric and insulating materials, press items and fabrication, rolling mill, straw board etc.

Though the large and medium scale industries are running well, the condition of SSI is deplorable. Out of 354 SSI, 90 have been completely out of production, and about 200 units have been incuring heavy losses and are bound to meet with similar fate if the situation does not improve. Table 2 gives a picture of healthy, unhealthy and dead units according to their approved items of product.

Table 2

Percentage of Healthy, Unhealthy and Dead Units by Approved Items of Production.

	Approved Items of Production	Percentage of Healthy units	Unhealthy units	Dead units
1	Casting and Engineering works.	36	29	35
2	Structural, Foundary and machining works.	38	31	31
3.	Fabrication and metal works	36	21	43
4	Chemical and Pharmaceutical works.	43	28	29
5.	Industrial, mining and auto rubber parts.	33	33	34
6	Automobile components	35	44	21
7	Wooden items and steel furnitures.	17	50	33
8.	Cement products	40	40	20
9.	Electrical and insulating	33	50	17
10.	Precision and Machining	14	29	57

As indicated by the table most of the dead units were found in the category of precision and machining industries which is 57 per cent. The highest number of healthy units is in the category of chemicals and pharmaceutical works (43%). The situation in cement based industries is also a bit better owing to easy availability of its raw materials. However the overall picture is not healthy as in no category the percentage of healthy units crossed the mark of even 45 per cent. The most affected category of products are precision and machining, wooden items and steel furnitures. Probably owing to lack of marketing facilities and lack of support from big industries. Lack of financial support and the problem of the non-availability of raw materials are common problems even for healthy units.

An attempt has been made to separate the casual factors and the agencies responsible for sickness. Following factors are responsible for unhealthy performance of small scale industrial sector of Adityapur complex.

Raw materials

The scarcity of raw materials, their non-availability in time and their odd distribution are some of the problems

rceived by the entrepreneurs. Around 80 per cent units :e the problem of raw materials. A large percentage of m claim that prices of raw materials fluctuated to such extent that they posed a serious problem for sustaining unit production as they did not have sufficient finance make available the raw materials in time. A sizeable centage of entrepreneurs blamed the faulty governnt policy for the non-availability of raw materials.

Table 3

centage Distribution of the types of the material resource problem faced by the two types of small scale industry.

ponse Categories	Healthy units	Unhealthy units
Untimely availability of raw naterials.	78	80
Variation in price of raw materials	55	68
Lack of finance	11	96
Faulty government policy	28	48

Marketing

Most of these units are caught in the problem of rketing. Lack of order, heavy competitive market and iation in prices make sale difficult. Besides, parent ustries are not cooperative in timely payment of bills l at times force them to sell their products at low prices. jority of the entrepreneurs have to handover their ducts of middlemen or big trading houses for rketing, that too under their trade names. All this ppens because there is no proper organization to plore market conditions and market requirements.

Table 4

Percentage Distribution of Entrepreneurs and Types of Problems of Marketing of their Products

sponse Category	Healthy units	Unhealthy units
Lack of order	46	91
Heavy competition	54	86
Unfavourable attitude of parents concern	54	52
Price variation	62	78
Loss of production	23	47
Lack of finance	30	83

Finance & Power

An important inhibiting factor for Small Scale Indus- s is finance. Most entrepreneurs point out indiffe- it and harassing attitudes of the financing institutions e government agencies, banks and other money lending titutions. These institution do not follow the guidelines ued by the government, but insist on their own terms, ulting in financial stringency to SSI units. The process inspection and appraisal of the unit is so bureaucratic l cumbersome, that, by the time the money is released ious damages are done to the unit.

Irregular power supplies and erratic power cuts adversely affect production both in terms of quality and quantity. The indifferent attitude of the power board officials add insult to injury.

General problems

The study of this industrial complex is hampered by many problems. The entrepreneurs complain that lack of technical knowhow, shortage of improved machinery, labour problems and the inadequate arrangements of consultancy act as checks on the growth of the units. They are also vocal about transportation problems. Due to non-availability of transport they have to be content with irregular supply of raw materials and delayed distribution of their finished goods.

Table 5

Percentage Distribution of the Responses of the Entrepreneurs of Healthy and Unhealthy Units to the problems.

Problem Areas	Healthy units	Unhealthy units
Licensing	23	07
Registration of unit	30	17
Technical Knowhow	13	23
Machinery shortage	23	50
High rate of interest	67	60
Transport	37	50
Heavy taxation	67	60
Indifference of government machinery	83	60
Labour problems	17	50

A close look at the table reveals the marked difference in the perception of the three problem areas i.e. labour problem, technical knowhow and machinery shortage. While 13 per cent, 23 per cent and 17 per cent of the successful entrepreneurs reported that they faced labour problems, technical knowhow problems and machinery shortage respectively, 50 per cent, 23 per cent, and 50 per cent entrepreneurs of unhealthy units faced such problems. Thus the findings clearly indicate that labour problems, machinery shortage and lack of technical knowhow were dominant problems faced by the unhealthy units as compared to healthy ones.

There is declining managerial effectiveness. Entrepreneurs themselves perform all managerial functions relating to organization, production, sales and purchase etc. Thus lack of technical hands, alarmingly abet the trend of sickness in the industry.

The small scale industrial units had to function with unfavourable support system. One should not be surprised if a unit, which functions under such a chaotic and stressful situation, is unable to carry on business profitably and smoothly and gradually become sick. But inspite of such a weak and unfavourable support system, some units were maintaining their organizational health. At least, they were making profit and had no major liabilities and were able to fight back most of the problems successfully. How was it possible ? Attempts were made to identify some of the personality characteristics asso-

(Contd. on page 23)

Raw materials crisis of small units

V. Ambili Kumar

The problem of procuring raw materials in the context of rising prices looms large on small scale entrepreneurs. It is adding to their cost and lowering profit. In this study the author says that small entrepreneurs seek raw materials at concessional prices. He suggests raising of the government quota of allotment of raw materials and co-operative venture in procurement.

THE SMALL INDUSTRY SECTOR OF INDIA has been inviting increasing attention and nursing by the promotional authorities. A series of schemes has been designed and implemented for the careful nursing and growth of this sector. But, still, this sector struggles for survival. One of the major difficulties faced by the units in the sector is that relating to raw materials. This was tested in a survey of SSI units of Trivandrum district in Kerala State.

The survey covered the registered SSI units which started production prior to 31st March, 1981 and which were existing by the end of 1987. As per the records of the District Industries Centre, Trivandrum, there were 1811 such units. Of this, 454 units (25 per cent) were selected on the basis of stratified random sampling. Units were grouped into 19 categories as those producing pickles, jams, squash, etc ; bread, biscuits etc ; cotton textiles ; coir products ; hosiery and garments ; wood products ; printing ; leather products ; rubber and plastic products ; chemical products ; non metallic mineral products ; basic metal products ; metal products ; machinery and parts other than electrical ; electrical machinery and apparatus ; transport equipment and parts ; miscellaneous items and units rendering personal services and repairing and servicing facilities. Data collected directly from the functional heads of the units were used for the purpose of analysis.

Problem of procurement

Data relating to the availability, price, quality, etc. of raw materials have been analysed and the result is given in the following lines. It was hypothesised that the SSI units of the district faced difficulties in ensuring the time availability of the required raw materials.

The productive efficiency of an industrial unit, to large extent, depends on the availability of the right ty of raw materials, at the right time and at the right pric The industrial units use either indigenous or imported ra materials. So far as the industrial units based c indigenous raw materials, which are not controlled iten and become easily available in the open market, a concerned, they experience difficulty in procuring goc quality raw materials at reasonable prices. For the la few years, the prices of raw materials have rapid increased, due to which not only the investme requirements of the units have increased, but also the profits gone down. Sometimes, indigenous and local produced raw materials are also not available to the re users on account of the activities of the hoarders, and th small scale producers are compelled to buy the require raw materials at abnormally high prices through blac market.

Out of the 454 units, 210 units (46.26 per cent) mad local purchase of raw materials, 127 units (27.97 p cent) purchased from near-by areas, and 115 units (25.3 per cent) from outside the district in addition to loc purchases. Only 10.35 per cent (47 units) of the tot units procured raw materials from outside the State. In survey of the small scale industries of Ludhiana, it wa found that 103 (88%) of the 117 units purchased ra materials only from Ludhiana, 12 from other places i India as well as from Ludhiana, only two from oth places in India, and one from outside India. Industry wise, it was observed that units manufacturing leath products, rubber and plastic products and electric machinery and apparatus procured raw materials full from places outside the district. In addition, most of th units under cotton textile industry, chemicals and chem cal products, non-metallic mineral products, and mach nery and parts except electrical, collected raw materia from outside Trivandrum District. All the remainin units (except service units) mostly depended on loc sources and nearby areas for satisfying the raw materi requirements.

Common complai

Increasing price of raw materials was found to be common complaint raised by various entrepreneur managers who were interviewed A high percentage (5 per cent) of the total units selected, faced no problem i procuring raw-materials at right time. Here, it may b specially mentioned that a large number of units unde wood industry, printing industry, personal services an repairing and servicing were service units which didn need to purchase raw materials. So the percentage wer as high as 50. Besides, many entrepreneurs were of th opinion that 'if money is available sufficiently, there is n problem of procuring raw materials . Really, the highe percentage (42.29 per cent) of the units surveye complained about the problem of high price. Nearly 6 per cent of the firms surveyed provided evidence th critical shortage of materials and components, that coul be purchased only at higher black market prices, made unprofitable for them to expand their production to

fuller utilisation of capacity. When 13.22 per cent of the total units surveyed complained about the non-availability of raw materials in time, only 4.85 per cent reported that there was the problem of poor quality of raw materials. But, D.T. Lakdawala and J.C. Sandesara reported that 224 or one-fifth of the surveyed small-scale units in Bombay had some difficulties in procuring raw materials, 146 had problems resulting from small purchases and dependence upon retailers and trade credit; 56 suffered owing to import control and similar restrictions and inferior quality of indigenous materials, and 22 owing to fluctuating prices.

Considering the number of service units which do not consume raw materials and the comment that 'if money is available sufficiently in time, there is no problem for the procurement of raw materials, it may be concluded that the problem of increasing prices made considerable influence in the procurement of raw materials. In addition, 42.29 per cent of the units surveyed reported that they faced the problem of increasing prices of raw materials. A vast number of them opined that had the required raw materials been made available at concessional rates, they could have worked successfully.

Inadequate quota

The data collected from the units surveyed reveal that only very few of them were allotted government quota for raw materials. In service industries, there is no need for government quota. Among the manufacturing or manufacturing cum-servicing industries, only a few units were allotted raw materials under government quota. No such quota had been allotted to units covered under coir industry, hosiery and garments, wood industry, printing industry, leather industry, machinery and parts other than electrical, and transport equipment and parts. Raw materials were supplied under government quota to all the units manufacturing food products such as bread and biscuits. Raw materials such as maida, sugar and rice had been allotted to them. The quota allotted to them was found enough to meet 83.33 per cent of their requirements. On an average, nearly 50 per cent of the raw material requirements of cotton textile industry were covered under the government quota. Raw materials like titanium and titanium dioxide were allotted under government quota to the industrial units for chemical products and rubber and plastic products.

Raw materials such as metal rods, metal sheets and pipes, had been supplied to the SSI units registered. But from the data collected, it is noted that comparatively a lower percentage of the units (17.3) covered under metal products industry enjoyed this facility. The materials so supplied were not sufficient to meet their requirements; only 60 per cent of the total requirements were met out of such supplies.

Nearly 50 per cent of the units manufacturing electrical machinery and apparatus enjoyed the full facility of government quota for raw materials. Only 42 35 per cent of the units covered under miscellaneous manufacturing industry enjoyed the facility for certain raw materials needed by them. Cement, ammonium gas, soft wood, chemicals, paraffin wax, etc., had been supplied to the industrial units from government quota at reduced rates. Entrepreneurs complained that they were allotted raw materials under government quota, but were unable to enjoy this benefit, because they were released (delivered) at Cochin. Taking delivery of such raw materials from Cochin would involved high cost of transportation, and consequent loss; hence, they preferred to buy them from the open market.

Insufficiency in the supply of raw materials under government quota was rightly pointed out by Dhar and Lydall in 1961. According to them an enterprise located outside the industrial estate got only a small portion of its raw material requirements at controlled prices and had to buy the rest in the open or black market. In Howrah also it was found that, of the 16 entrepreneurs who applied for quota raw materials, only one got it. The poor supply of raw materials under government quota was pointed out also in a survey of small scale industries in Ludhiana. It was observed in the present survey that only about 5-25 per cent of the requirements of the units was met out of the government supply. Even for that meagre supply, there was no certainty as to when it would be available. It was not received regularly every month or in some cases even every quarter.

General demand

During the survey, most of the entrepreneurs who used different types of raw materials emphasised their need for raw materials at concessional rates. One of the major complaints from printing units was that raw materials under government quota were allotted only to units publishing weeklies, newspapers, etc. It was sought that such facility should be extended to all printing presses registered as SSI units. Another complaint noticed was that the raw materials were not available in the open market at low cost. Some of the entrepreneurs complained that the allotted raw materials were not supplied at the proper time and that they were not of the right quality. One entrepreneur opined that it was very difficult to have raw materials under government quota, for SSI units have a less influencial capacity. A few entrepreneurs complained that raw materials under government quota created difficulties when they were asked to take delivery of the raw mateials at distant places. Some of the entrepreneurs interviewed opined that, if raw materials of the right quality and quantity were supplied at the right time, the general increase in the prices of various materials could be controlled to a certain extent. In the light of the above information, it may be concluded that the small scale units of Trivandrum district faced many problems in procuring raw materials Therefore, it is essential to extend the facility of raw materials at concessional rates, and to ensure its availability at the right time and in the required quantity and quality.

Middlemen

On the basis of the information collected, it was noted that middlemen had no major role in procuring raw materials needed by the SSI units; only 11.45 per cent of the total units surveyed depended on middlemen.

Among the manufacturing industries dependence on middlemen was found to be high in chemical products and

(Contd. on page 15)

Employment potential of Brick Industry

G.C. Mathur

Increasing job opportunities in rural areas is high on the agenda of development. According to the author, the brick industry opens new vistas for job creation and skill formation at modest investment. There is, however, need for man-power planning and enforcement of welfare laws relating to the industry.

BRICK MAKING IN OUR COUNTRY is a decentralised rural activity. It employs large labour force, particularly unskilled workers from the villages, especially during off season.

It has been estimated by the National Buildings Organisation that there are over 30,000 brick production units of varying sizes operating in different parts of the country in which some 3 million rural people are seasonally employed.

The techniques of brick making are simple requiring traditional skills like those of moulders who make the bricks and firemen who operate the kilns. The process of brick making/burning from the point of view of generating local employment opportunities for the rural population can be categorised as follows:

(a) *Country Clamps* which is formed out of bricks which are to be burnt. The clamp is made for burning about 1,800 bricks at a time as may be required for the village household needs. Twigs of trees, cow dung cakes and fire-wood are mostly used as fuel.

(b) *Temporary Kilns* in which the front and the back walls of the kiln are made of burnt bricks in mud mortar. The rest of the walls of the kiln are constructed with the bricks that are to be burnt as in the case of clamps. The temporary kiln is used for burning some 10,000 bricks at a time. Coal and fire-wood are used as fuel.

(c) *Continuous Kilns* are employed for manufacturing bricks on regular basis for which Bull's Trench Kiln or Hopman Kiln is adopted. These kilns are designed on scientific principles which ensures proper burning of bricks and efficient use of fuel.

The following basic operations which are lab intensive are involved in brick making:

i) Digging and preparation of clays;
ii) Haulage of prepared clay and moulding;
iii) Stacking of moulded bricks for drying;
iv) Carrying dried bricks to the brick kilns;
v) Loading and unloading of kilns;
vi) Firing of bricks;
vii) Stacking of fired bricks and sorting good brick
viii) Handling and transportation of bricks to constr tion sites.

For the performance of these operations, local lab is employed.

Capital investm

It has been estimated that initial capital investm required for setting up a Bull's Trench Kiln havin capacity of producing six million bricks per year is of order of Rs. 5 lakhs. The break-up of investment is follows:

Land lease	10%
Labour wages	20%
Labour amenities	5%
Cost of coal	40%
Cost of construction of kiln and accessories	20%
Contingencies	5%
	100

20 to 25 teams of moulders are required for produc 30,000 bricks per day. The total strength of lab required is as under:

A. Skilled Labour	No.
1. Moulders	25
2. Brick setter	2
3. Firemen	6
4. Mechanic	1
5. Mistry	1
6. Accountant	1
	36 N

B. Unskilled Labour	No.
1. Helpers	45
2. Transport of dried bricks and loading to the kiln	15
3. Unloading	20
4. Misc. (Waterman, Ghoalmen Stacking, sorting, etc.)	15
	95

Total: 131 Nos.

The number of labourers employed in the brick dustry per one lakh investment is 50

As the brick making operations, being labour intensive, employ large work force of skilled and unskilled labour during brick making season, it is necessary to undertake man-power planning in the brick industry. This is becoming increasingly important as the brick industry has been facing shortage of skilled labour such as moulders and firemen. Also in certain situations non-availability of skilled labour is found due to specific reasons such as occurance of natural disasters, increase in agricultural production, migration to urban areas in search of employment, diversified employment opportunities in rural areas etc.

To cater to the requirements of brick industry and to increase productivity, it is necessary to make an assessment of the availability and demand of man-power for operating the brick industry.

Training is required for inculcating requisite type of skills and also to orient the skilled workers to newer types of skills that are required by increasing productivity in brick industry. Presently, there is great need for training of brick moulders and firemen. In addition, for the development of brick industry, particularly for the introduction of machinery and equipment as well as for adopting more scientific methods of burning bricks, new types of skills are required to be generated by organising training facilities.

Apart from this, some training is also required to the unskilled labour in order to equip it to undertake specialised jobs more efficiently and in a productive manner. By doing so, the unskilled workers gradually acquire some rudimentary skill and could work as semi-skilled workers and thereafter over a period of time, with adequate training, they could serve as skilled workers.

Education

Also,as the labour employed in brick making is often not literate and drawn from rural areas, programmes of adult education should be organised in which aspects related to brick making and other trades for gainful employment should be included.

There is no agency at present which is undertaking man-power planning in the brick industry. Considering the high employment potential of the brick industry and the need to increase its productivity by the development of the industry, it is necessary that the brick manufacturers' associations should organise themselves to undertake man-power planning in brick industry.

Special studies should also be undertaken to assess the working and living conditions of the labour employed in brick industry and practices which are detrimental to the well being of the workers and result in loss of productivity, should be identified and remedial measures taken thereof. It is hoped that the All India Brick & Tile Manufacturers' Federation will take active interest in labour welfare. □

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(Contd. from page 8)

We must realise that the Public Distribution System in terms of marketing philosophy and practice is a novel experiment. Civil Supplies Corporation can make a major contribution towards the success of the Public Distribution System and extending its frontiers. □

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non-metallic mineral products, in which 50 per cent of the units depended on middlemen for raw materials. On the other hand, it was only 5.33 per cent in the case of metal products. Excepting some units in printing, chemical and chemical products, non-metallic mineral products, metal products and miscellaneous manufacturing industries, no manufacturing unit was found depending on middlemen for procuring raw materials. This is against the findings of the survey held in Howrah, in which case it was observed that middlemen were the predominant source of raw materials. The same observation was made in a survey in the Saugor district also.

Conclusion

The price of raw materials is a key element in determining the profitability of any product. As far as the manufacturing units in the SSI sector are concerned, different challenges are to be faced for the right type of buying. Higher prices, poor quality, non availability in time, etc. are the major problems observed. In addition, it was found that all types of units in the SSI sector were not allotted raw materials under government quota. In some cases, allotment of raw materials under government quota created difficulties as regards the place of delivery, time of delivery, quantity etc.

In order to avoid the problem of non-availability of raw materials in time, the intervention of the government becomes most inevitable. It is suggested that the allotment of raw materials under government quota be enhanced. In addition, the availability of such quota of raw materials in time and of the required quality should also be ensured. Some co-operative societies with the membership of industrialists in the small scale sector can be established to solve the crisis of the non availability of raw materials in the required quantity and at the right time. The societies can pool the requirements of the members in a particular area directly from the manufacturers or large wholesalers and can take advantage of the economy in bulk purchasing. This arrangement may also facilitate the elimination of middlemen who take advantage of the situation and exploit the SSI units.

V. Ambili Kumar, Research Scholar, Kerala University.

Water management: A crucial factor for a sustainable agriculture

Dr. R.P. Singh

Water is neither free, nor cheap to store. Ironically, it becomes costlier with the pace of progress. This calls for its judicious use. The author says, its limited availability also underlines the need for more concerted action for evolving dry land farming techniques.

THE IMPORTANCE OF WATER AS A valuable resource for agriculture can never be over-emphasised Being so, it has rightly been engaging serious attention of our planners and policy makers With the result, we have today the world's second largest irrigated area in the world— next only to China From 23.2 million hectares in 1951-52 which marked the beginning of planned development, the gross irrigated area in our country has gone to over 70 million hectares, registering over 300 per cent increase during the last three and a half decades of planned period It now covers nearly one-third of cultivated area

There are two major sources of water for irrigation—surface and underground. Many people have a wrong notion that surface and underground water is an unlimited resource. They lose sight of the fact that there is a limit to which surface and underground water can be tapped for irrigation. As the situation in our country exists, the irrigation commission has estimated that the ultimate irrigation potential when the entire water resources are fully exploited will be about 110 million hectares, 52 per cent of the total sown area of 210 million hectares. This estimate has been made based on the depth of irrigation per cropped area to be 70 mm. Thus, nearly 45 per cent of our cropped area will remain unirrigated for all time to come. This is despite the fact that ours is a country gifted with ample monsoon rain. The total annual precepitation comes to about 330 million hectare metres. It can put the entire land surface to a depth of over one metre But the problem is that it is not evenly spread in terms of space or time. This necessitates conservation of as much water in excess of evapotranspiration as possible during the short wet season so as to make it available for use during long dry parts of the year. The water so conserved car made available for use even in distantly-located a areas. By diverting the excess water available elsewh to scanty rainfall areas, the productivity of dry farm crops can be appreciably increased. So far as movement of conserved water over long distance concerned, this is very much possible with rec advances in water conveyance technology.

It goes without saying that howsoever efficient a effective measures may be used for detention and stora the loss of surface water through seepage, evapotra piration and run off can be minimised but not stop altogether. So far as ground water is concerned, the n for legislation regarding the spacing, the depth and quantity of water pumped through tube wells which m be privately constructed, owned and operated ari because it is a scarce resource.

When it is said that water is a scarce resource, water is not taken into consideration for the simple rea that it can be used neither for drinking nor in industr and agriculture. It is high salt content which renders water unfit for consumption. There is, no doubt, techn logy available to disalinise sea water but the cost invol is too high and prohibitive for large scale use. As situation exists today, there is no possibility of eco mically viable methods of converting sea water or brak water to fresh water being developed even in the distant future. But assuming such technology is develop at any point of time, transportation of disalinised cle sea water economically to far-flung farmers' fields in countryside will be the greatest limiting factor.

Regardless of what the ultimate irrigation potent may be, the fact remains that we have still vast untapp surface and ground water resources. Efforts have to made to harness the untapped potential. Even thou agriculture is the principal consumer of water, it utili little of the available supply. At the global level, m river water flows to the sea almost unused by man a half of the water evaporates from the continents, playi little role in human life.

According to an estimate, out of about 330 million hectare metres annual precipitation in our country, around 70 mhm is lost by way of evaporation. It is humanly impossible to control this loss. "The soil absorbs about 150 mhm of this, 110 mhm helps in creating surface moisture and the remaining water seeps into the underground depth. The rest of the 180 mhm of water alone enters the river system. This is the only source we are trying to control through big irrigation plans"

Contrary to the traditional notion again, water is no longer a free resource in highly developed and developing and/or densely populated countries. Particularly irrigation water in such countries today involves high capital and operating costs. It will become increasingly costlier as more and more people demand increasing amounts of cleaner water with growing population and pace of development. As Dr. M.S. Swaminathan, the then Director General of the Indian Council of Agricultural Research, observed while delivering his presidential address at the thirty-seventh All India Agricultural Economics. Conference way back on December 27, 1987, "the cost of irrigation has been increasing and now on the average, it is about Rs. 7,000 per hectare of irrigated area". Obviously, the cost must have since further increased. The yields per unit of irrigation water, therefore, must be high. This necessitates an intensive use of irrigated land using all other factors of production including high-yielding varieties, fertilizers, pest control and effective farm practices to full advantage It deserves mention here that a large per cent of the water, if spread on too much land, is lost through seepage and useless evapotranspiration. Lighter the soil, more is the permeability and hence more the seepage. Similarly, longer the growing season and more the amount of sunlight higher is the evapotranspiration. In addition to permeability of the soil and evapotranspiration, it is the quality of water and salt tolerance of the crop which determine the amount of water that must be applied for maximum crop yield in a particular situation. It is ofcourse a different question as to how economic is the amount of water applied in a given situation. It depends on the cost of water supply, the value of the crop to be grown and the consequences of less than optional water input as to yield.

Irrigation being a key resource for agriculture, all-out efforts need to be made to effectively and efficiently utilize surface and ground water to the extent possible. More and more areas must be brought under irrigation to fully exploit the potential. But what is equally, rather exceedingly, important is to improve the present rather low efficiency of water use economy. It must be borne in mind that mere availability of water for irrigation does not ensure successful agricultural venture. It bears significance in view of the fact that about half of the water released from reservoirs for irrigation is lost in the conveyance system consisting of the main canals, distributories, water courses and field channels and less than half the water that reaches the farmers' fields is utilized by crops. There is, thus, a big gap between the potential created and the potential utilized. The loss of water in transport is mainly because of seepage and useless water-loving plants growing along the banks that suck water and transpire it to the air. The loss of water in conveyance can be reduced by better linings of conveyance system. It is because of percolation and useless evapotranspiration that much water is lost from the fields. The losses can be lowered by improved irrigation practices which have to be convincingly brought home to the farmers.

In the process of strengthening and creating necessary infrastructures for developing water resources, the havocs caused by faulty irrigation methods and excessive water use must not be lost sight of. Lack of drainage results in failure of many irrigation projects. Excess water, if not drained off the irrigated fields, simply seeps into the underground and raises the water table which causes salinity problem gradually deminishing the productivity of the land. Poor drainage and high water table in canal-irrigated areas lead to serious consequences which must be the guiding factors in devising effective measures to overcome the ills of abundant water. The absence of proper drainage facilities in canal command area creates acute problems of water logging in large areas converting what should have been a blessing into a curse. It is not only that large areas are lost to water logging. Because of poor drainage in nearly level plain, water may spread over larger areas providing fertile ground for human diseases like malaria. As Roger Revelle observes, "Uncontrollable malaria might well have been the cause of the mysterious disappearance of the great civilisation of the cities of Mohanjodaro and Harappa, which flourished 4,500 years ago in the Indus valley of Pakistan". As a result of poor drainage, he further observes, "the water table comes close to the surface and drowns the roots of most crop plants. Water rises through the soil by capillary action and evaporates, leaving an accumulation of salt that poisons the plants. The related disasters of water-logging and salinity may have caused the ruin of the Babylonian civilisation in the valley of the Tigris-Eupharates".

In view of high capital and operating costs on irrigation, efforts must be directed towards making the best use of available water. In a situation where the farmers are using water more than what is required, it needs to be amply demonstrated that they can reap the same or even better harvest with judicious use of less water. Further, the water thus saved can be used to increase the yields of crops grown in moisture-stress conditions.

In case of limited water supply, the farmers can get much better yields with just a few irrigations provided they water the crops at critical stages of plant growth using improved irrigation methods. Similarly, the farmers should be made to realise that if the limited water is spread on too much land, a large percentage of the water will be lost through seepage and useless evapotranspiration.

The fact that nearly 45 per cent of our cropped area will ever remain unirrigated greatly signifies the need and importance of dry farming technology. Our scientists are very much alive to the grim situation obtaining in dry farming areas with respect to crop productivity. They are

(Contd. on page 25)

Changes in poverty level in Maharashtra

Prof. R.L. Mali

Poverty alleviation programmes have fallen short of their expectations in Maharashtra. In this analysis the author has shown that the number of people below the poverty line has swelled instead of shrinking.

LIKE THE ECONOMY OF THE NATION, the economy of Maharashtra is also predominantly rural with majority of its population dependant on agriculture and allied activities. The agriculture of the state displays certain special features related to rainfall, climate, crop-pattern and output levels, which in turn exercise considerable influence on the income and level of living of rural population.

According to 1981 census the total population of Maharashtra was 627.84 lakh. Percentage of rural and urban population to total population was 64.97 and 35.03 respectively.

Gross cropped area in 1985-86 was 2026 thousand hectares and that of net sown area was 18031 thousand hectares. Index number of agricultural production of principal crops was 112.9 as compared to 1967-70 = 100.

The state income at current prices for 1986-87 was Rs. 26718 crores while the per capita income was Rs. 3792.

Percentage of agricultural workers to total workers in 1981 was 61.75. It is a widely accepted fact that the agricultural workers are paid very low and therefore, this sizeable portion of the population lives a hazardous life.

The rudimentary figures on the structure of economy outlined above make a prima-facie case for arguing that a fairly large portion of the rural population in Maharashtra belong to the category of poor whose level of income is not sufficient to meet their basic requirements. There have been a number of studies which estimated levels of poverty and changes in it on a national basis. But there are very few such studies in case of Maharashtra. Therefore, the present paper tries to analyse the changes in poverty levels during recent years in Maharashtra.

The seventh finance commission study

The commission based its measure of poverty line on Prof. Dandekar-Rath norms of Rs. 15/- per capita per month expenditure for rural areas and Rs. 22.50/- fc urban areas at 1960-61 prices.

Multiplying the all India poverty norm for rural are (Rs. 15/-) and for urban areas (Rs. 22.50) by thei respective State Specific Price Indices (rural and urba respectively) the commission arrived at State Specifi Poverty Lines (SSPL).

According to Commission Maharashtra State Speci fic Poverty Lines for rural and urban areas at 1960-6 prices are Rs. 16.01 and Rs. 21.79 respectively.

In order to calculate SSP lines at the prices of 197C 71, the consumer price index numbers for agricultur labourers for rural area and for urban areas consume price index number for working class were utilised.

For Maharashtra, SSPL for rural and urban areas a 1970-71 prices are Rs. 30.72 and Rs. 39.72 per mont respectively. Percentage of population below poverty lin was 46.67 and 38.07 for rural and urban areas respec tively.

Objectiv

The paper has been prepared with the objective to fin out the distinct changes in poverty level during the perio 1983-84 to 1986-87, i.e. the period between the NS 38th round and the 42nd round.

Methodolog

Prof. V.M. Dandekar and Prof. N. Rath have made valuable contribution to the measurement of poverty i India. According to them in 1960-61 Rs. 180 an Rs. 270 per annum was the minimum level of consump tion expenditure for rural and urban areas respectively. I other words, these figures are the poverty lines in mone terms in 1960-61, on the basis of which Prof. Dandekar & Rath estimated that 40% of the rural population and 50% of the urban population was poor in 1960-61.

Prof. Dandekar & Rath have also estimated the exter of poverty in various states of our country in 1961-62 According to them 2250 calories per capita per day ar essential in Indian conditions People who could not ge this minimum number of calories or those who could nc spend on the foodgrains which could give them 225 calories per day, are regarded as poor. Thus on the basi of minimum number of calories required or the minimur level of income required to purchase adequate food, Dı Dandekar and Dr. Rath estimated that in Maharashtra i 1961-62, 61.04% of rural population and 58.18% c urban population was poor.

I have assumed these percentages (61.4% in rural area and 58.18% in urban area) as norms for calculating the percentage of population below poverty line in 1983-84 and in 1986-87. Poverty line being Rs. 238 for rural area and Rs. 370 urban area, per annum

With the help of the Price Index Number in 1961-62 (= 100) and with the help of Price Index Numbers in the years under consideration (1983-84 & 1986-87) the price deflators are calculated and with the help of which poverty ratios in the years under consideration are calculated.

Data

For calculating the poverty lines in the years under consideration, the following data have been used—

i) Percentage distribution of estimated number of persons by monthly per capita expenditure classes, value of monthly per capita expenditure on broad group of items for different income groups — NSS 38th round 1983 and NSS 42nd round 1986.

ii) Price Index of consumer Prices for agricultural labourers and Index Number of consumer prices for working class—Basic Statistics Relating to Indian Economy, 1987, CSO, Ministry of Planning, Govt. of India and

iii) Maharashtra Economic Survey 1987-88.

iv) Dr. Dandekar & Dr. Rath, "Poverty in India."

Findings

As mentioned earlier, for calculating Poverty ratios in the years under consideration, Poverty ratios and poverty lines calculated by Prof. Dandekar and Prof. Rath in relation to Maharashtra for 1961-62, are assumed as standard. According to them Rs. 238 for rural area and Rs. 370 for urban area per annum was the poverty line in 1961-62 in case of Maharashtra. On the basis of this following are the findings:

Table 1

Percentage of Population with an Inadequate intake of Calories in Maharashtra

Rural		Urban
Year	Percentage	Percentage
1961-62	61 04	58 18
1983-84	55 93	60 13
1986-87	57.19	62.03

Table 2

Price Index for Agricultural Labourers (Rural)

Year	Price Index
1961-62	100
1983 84	532
1986-87	611

Source Basic Statistics Relating to Indian Economy, 1987, CSO, Ministry of Planning, Govt of India.

Table 3

Price Index for Working Class (Urban)

Year	Price Index
1961-62	100
1983-84	607
1986-87	776

Source Basic Statistics Relating to Indian Economy, 1987, CSO Ministry of Planning, Govt of India

Table 4

Calculation of Poverty Line

Year	Poverty Line (rural)	Poverty line (urban)
1961-62	Rs 238 per year	370 per year
1983-84	Rs 1266 16 per year	2245 90 per year
1986-87	Rs 1454 18 per year	2871 14 per year

Conclusion

From the above (Table-1) we can conclude that —

i) As compared to 1961-62, population living below poverty line or poverty ratio has declined in rural areas of Maharashtra in 1983-84 and in 1986-87. It is 55 93 in 1983-84 and 57.19 in 1986-87, which was 61.04 in 1961-62. Thus, as compared to 1961-62, poverty ratio has declined, approximately, by 6% in 1983-84 and by 4% in 1986-87.

ii) But as compared to 1983-84 poverty ratio has increased by 2% in 1986-87.

iii) However, in urban area the poverty ratio has increased. The percentage of population below poverty line seems to be increasing. The poverty ratio has increased approximately by 2% in 1983-84 and by 4% in 1986-87 as compared to 1961-62.

Thus, in brief we can say that over a period of 26 years, the percentage of population below poverty line, has not declined in Maharashtra, though the Govt. has launched many ambitious poverty eradication programmes.

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Urban fuel demand and environment

Shiv Dayal Singh

In this research piece, the author notes that the environmental problem is unwittingly fueled by the rising demand in urban centres. While the rural demand is catered to by residues, rapid urbanization is tilting the ecological balance. There is need for stirring the statistical machinery for proper appreciation of the problem by policy makers and people at large.

FIREWOOD HAS BY FAR BEEN ONE of the most important sources of energy in rural and urban areas. Firewood consumption invariably produces negative environmental impacts because it is often associated with deforestation on the one hand and air pollution on the other. The 1952 National Forest Policy Resolution of the Government of India recommended that at least one-third of the country's land or about 100 million hectares should be placed under tree cover and forests to maintain ecological balance. However there has been a tragic failure on the part of the State administrations in general and the Forest departments in particular in achieving this goal. This is reflected in the fact that at present only 30 million hectares of our land is under forest cover. What is more even this is being depleted on account of very heavy pressure estimated to result in an annual decline of 1.5 million hectares. Although data on fuel wood production and consumption is inadequate, it was estimated in 1986 that even if the demand for wood in India is reduced by 20-30 per cent through replacement by other fuels about 20 million hectares would need to be planted between 1986 and 1990. Large quantities of firewood are at present being brought into urban areas as a result of which the availability of firewood to rural population is decreasing. In Rajasthan the reported area under forest in 1982-83 was only 9 per cent of the total geographical area.

Fallacy

It has often been assumed that the cause of deforestation lies on the villager's dependence on firewood as cooking fuels or because of his lack of concern for the environment. However, several studies have shown that, in almost all rural areas, this is not always true. These studies show that villagers rely predominantly on twigs, roots, crop residues, dung cake or dead branches and leaves collected mainly by women and children. Therefore, it seems that to find out causes of deforestation and ecological imbalances in rural areas one has also to search for reasons outside the rural areas. It is now realised that apart from the rural demand, firewood is mainly required to meet urban demands for several uses. On account of the rapid rates of urbanization in recent years the total demand in absolute quantities is increasing very rapidly. This is indicated by the sharp rise in the price of all categories of wood in recent years.

One may therefore, hypothesize that the huge fuel wood demand of the urban centres may be responsible for creating ecological imbalance in rural areas.

The present study is based on a field study undertaken in a major urban centre of Rajasthan viz. Jaipur to assess the quantity of wood being brought into the city from the surrounding villages. The study seeks to estimate the total supply of fuel wood to Jaipur city from its catchment areas. It also attempts to find out how this supply is disposed off in the city.

Methodology

To study the fuel wood supply in a major urban centre like Jaipur, both primary and secondary data were collected. The supply system is of two types. One is the public supplies through government agencies and the second is supplies through private channels. The supply through government agencies is with the Department of Forests. There is one forest depot and three cooperative societies depots for sale of fuel wood. Private trade is in the hands of a large number of contractors. A few traders also operate at the mandi level. The official data on supply of fuel wood was obtained from the forest Department. To obtain data about private supply, direct observation at the entry points was necessary. There are nine entry points to Jaipur city. Each entry point has one check post (Octroi Post) which records entry of all types of transport and the goods they carry. Wood from adjoined rural areas is generally transported in camel carts. The records of the check posts showed that there was gross under recording of camel carts on all of the check posts. Therefore, it was decided to collect data by round the check personal observation. Agra Road and Kalwar Road are the two main fuel wood supply routes. These points were watched for seven consecutive days each. The rest of the entry points were observed for two to four days each. On the basis of data compiled in this manner, it became possible to asses the extent of under reporting as well as to get a direct knowledge of the fuelwood situation.

Under estimate

It was observed that camel carts after entering the check post are taken for weighing to a weighing centre called a *Dharam-kanta.* The *Dharam-kanta* owner issues them a slip for the weight. These *Dharam-kanta* records were also obtained as a more reliable and authentic record of the quantity brought in. The check post record is a gross underestimate because of evasion of octroi and other regulations on fuelwood. The records of the *Dharam-kanta* were more reliable. The only problem with these records was that it was not possible to obtain a long time series. We could obtain data only for a few months as most of the weighing stations do not keep their records for longer period. Reservation in giving the information was another reason for this.

Supply of fuel wood

Table 1 shows the supply of fuel wood by Forest Department Depot and three Co-operative societies, for the period of eleven months for the year 1986. The average supply by the Forest Department was 1901 quintals per month and of the Co-operative society was 832 quintals per month. The latter is 30 per cent of total government supply. The peak months of supply are January to March & July to September. In all approximately 2733 quintals of fuel wood per month is supplied by the government The supply is mostly met from various Forest areas located in different parts of Rajasthan. Present supply is reported from Sawai-Madhopur, Kota, Chittorgarh & Alwar districts.

Table 1

Month wise supply of fuel wood by forest and cooperative societies (1986)

(Quantity in quintals)

Month	Forest Department Depot	Cooperative Societies				Total Govt supply (2 + 6)
		I	II	III	Total	
1	2	3	4	5	6	7
January	11973	707	787	767	2261	14234
February	1065	325	381	325	1031	2096
March	1810	150	621	19	790	2600
April	630	119	27	190	336	966
May	371	225	244	247	716	1087
June	586	389	197	267	853	1439
July	1122	281	114	279	674	1796
August	1396	232	266	253	751	2147
September	1393	171	438	241	850	2243
October	563	145	117	134	396	959
November	na	146	185	168	499	499
Total	20909	2890	3377	2890	9157	30066

Note Data for month of December was not available

Table 2

Entry point wise arrival of Camel carts per day in the month of Oct. 1986

Entry points	As per Octroi post records		As per observation		Difference	
	No of camel carts	Qunatity carried (Qts)	No of camel carts	Quantity carried (Qts)	In Number	In Quantity
Agra Road	36	468	210	2730	174	2262
Delhi by pass	1	13	8	104	7	91
Sikar Road	Nil	Nil	3	39	3	39
Niwaru Road	Na	Na	11	143	11	143
Kalwar Road	1	13	27	351	26	338
Sirsi Road	Na	Na	12	156	12	156
Ajmer Road	Ns	Ns	23	299	23	299
Sanganer Road	Nil	Nil	30	390	30	390
Jhalana Road	Na	Na	6	78	6	78
Total	38	496	330	4290	292	3796

Note No entry made in official records
Na No check post on the road
Ns Records not made available

Table 2 shows details of arrival of fuel wood by camel carts per day through different entry points in Jaipur. The table also shows the difference in official records and actual arrival of fuel wood. Maximum carts were found to be arriving from Agra Road, both as per official records and as per personal observation, followed by Sanganer Road, Kalwar Road, Ajmer Road. Official records for the month of October 1986 shows that only 38 camel carts carrying fuel wood entered per day in Jaipur city. In the same month, we also observed and found much difference. The extent of under reporting becomes apparent from the data of the most important entry point i.e. Agra Road. Official records showed an arrival of 36 camel carts only. But our personal observation, taken by sitting at the check post for seven days, found that on an average 210 camel carts enter from this point. In the case of other entry points official entry either shows a negligible number or no number at all, but the actual observations that were recorded are shown in table 2. If the total of all entry points are taken there is difference of 254 camel carts per day which is of great importance and consequence. This difference amounts to around 4000 quintals of fuelwood per day which clearly shows the gross under estimation of the situation. In terms of magnitude, the total estimated arrivals in Jaipur city imply that about 1000 trees are being cut every month in Jaipur city.

Table 3 gives the relative share of public and private supply of fuel wood in Jaipur city. Government is only meeting 2 per cent of this supply, 98 per cent is supplied by private traders. This supply is mostly made by camel carts. Is Government taking note of this quantum supplied by private traders ? It is difficult to answer.

Table 3

Source wise supply of firewood in Jaipur city

Sources	Supply in Quintals per month	Per cent
Forest Depot	1901	1 4
Co-operative societies	832	0.6
Private Contractors*	130416	97.9
Total	133149	100 0

* As per survey

Demand

The Forest Department of Rajasthan in their report highlights the problem of Energy and estimates the demand of fuel wood in Jaipur city. The Report says that the population of Jaipur city now is approximately 12 lakhs. The city has Liquid petroleum gas, Kerosene and fuel wood as its chief source of energy. The city is supplied 3000 k. lit. of kerosene, further, currently it has about 80,000 gas connections. LPG and kerosene meet the requirement of another 7 lakh persons of the city.

According to the 'Energy Survey Committee Report' the demand of fuel wood in urban areas is estimated at 0.41 kg per capita per day. The Government of India's fuel wood committee report cites that demand of a famil of 5 persons per annum is 1.125 tonnes. Here it is logical t say that fuel wood consumption of a family of 5 is 2 tone per year. The number of death in Jaipur city presently i approx 4760 per year. In the year 2001 the figure is likel to rise to 10,000. The demand to cremate these bodie will be 4000 tonnes annually. Thus the total requirement c fuel wood for Jaipur city is expected to be 2,12,000 tonne per annum by 2001 AD. It is estimated that 50% of th total demand of fuel wood will be met from trees plante by farmers and other individuals under farm forestr schemes.

Impact on environmen

There is a fundamental difference between firewoo usage in cities and towns and that in villages. Rura household depend predominantly on twigs, branches leaves, and roots obtained mostly by gathering. In contrast, cities and towns use logs of wood in hug quantity which need to be transported to over larg distances and which is energy intensive. There is a preference for logs and high bulk density rather thar twigs' with low bulk density. Thus urban fuel woo consumption has a much greater negative environmenta impact than rural dependence on firewood as a domesti fuel. The impact is far more negative when a tree like *Khejri* is cut which is the most important tree fo maintaining the ecological balance of the rural areas ir Rajasthan. This tree has multiple uses ranging from providing fodder for livestock, to providing nutrients fo land and fruits & fuel for human beings. The quantity o firewood consumed in Jaipur and its villages is considerable. It is associated with major environmental impacts such as deforestation, pollution and huge waste of animal energy for transportation.

There is likelihood that the requirements of fuel wood will grow further with the paucity of fossil fuels and it would be very unsustainable to the society in the long run. Although the fuel wood is a bio-mass which is a renewable source of energy, but it is being depleted fast. The rate of depletion is beyond the renewable capacity of the forest. The origin of the problem lies in the fact that the bulk of the fuel wood is consumed in the poorest households for cooking who can not afford to get coal or gas supply for the purpose.

Policy implication

i) Effort to search for alternative energy sources for urban areas to check the negative impact on the environment of rural areas need to be intensified.

ii) There is a need for a detailed study of urban energy demand particularly the demand for fuel wood so that more specific solutions may be found.

iii) Official statistics which give a more correct picture to the public must be supplied in order to generate greater sensitivity to the issues at the level of policy making as well as at the level of public appreciation of the problems.

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Tribal ethics of forest conservation

Ram Kumar Bhakat

The Indian tribes have a rich folklore about plants and their conservation. Their religious belief that some deities reside in the forests, has played a significant role in the preservation of plant resources down the centuries. In this era of shifting cultivation and rapid deforestation, such beliefs still survive as the hope for preserving the indigenous flora, says the author.

INDIA IS A LAND OF DIVERSE NATURAL resources. It is also a country with the strongest traditions of nature conservation anywhere in the world. It is true that India has suffered an almost unabated devastation of its natural biological heritage, and much of what remains has been preserved through the ages because of a wealth of conservation-oriented cultural and religious traditions. One such significant tradition of nature conservation is that of dedicating patches of forests to some deity by the tribal people. In fact, the tribal techniques are basically conservation-oriented. It is the contact with modern civilization that has been marring this ethics.

Forest to tribals as water to fishes

The tribal ethics of forest conservation stems from the fundamental facts of their own existence. The dependence of tribals on forests is maximum and their long-term interest lies in protection and not in destroying forests. Some one has said "Forests to adivasis (tribals) as water to fishes". The tribal cultural heritages are shaped and maintained through a symbiotic relationship with forests. Based on the age-old perception of the surrounding vegetation, they demarcate plants as useful and unuseful, medicinal and non-medicinal, ritualistic and non-ritualistic, edible and nonedible, and interact with them accordingly. In addition to providing the daily amenities of life, the forests also satisfy their deep-rooted sentiments. Their folklore revolves around the forests. Their way of life is intimately connected with forests right from birth to death. In the time of distress forests are their last succour.

Shifting agriculture

Shifting agriculture on the hill slopes is perhaps one of the major antiecological practices in today's context that can be cited against the tribes. It is the most ancient form of subsistence pattern involving "slash and burn" of forest, followed by mixed cropping over the burnt area for a year or two and then leaving the nutrient depleted land fallow for natural regeneration to get it recuperated of soil fertility ; moving to another field and eventually coming back to the earlier one. When the forest-dwelling tribal population was small, the effects of small clearing in large forest areas too were small and the slash and burn cycle was long enough over 20-30 years to ensure the system self-sustaining. In recent times, due to increasing population and steady decline in the area available, the shifting cultivators are forced to return to the same plots and the cycle has been shortened to 4-5 years. Although the economy is sustainable subject to vast availability of forest lands, an increasing practice of shifting cultivation has caused serious environmental damage resulting in rapid desertification of vast tracts of land. Forests which once covered a vast area are now left only in patches.

Sacred groves

Despite such colossal disturbances on forests, there are few pockets of undisturbed natural forests preserved on religious grounds by the local tribes as *Sacred groves.* These groves represent near-virgin vegetation preserved in *in situ* form without any outside interference and are indicative of what forest wealth the country once harboured. All forms of life in such a grove are under the protection of the reigning deity of that grove, and the removal of even dead wood is taboo. This preservation of the entire vegetation in association with a deity is quite a distinct phenomenon from the preservation of isolated trees like *Peepal.* These sacred groves may range in size from a group of few trees to a forest of trees spaced over several hectares of land. Sacred groves occur in India and some other parts of Asia and Africa as well. In India they have been reported from Madhya Pradesh, Maharashtra and Meghalaya.

Folk beliefs and taboos

Folklores play a significant role in confirming the beliefs associated with the sacred groves. Though most of the tribals are illiterate, they have scrupulously preserved their traditional customs, rituals, ceremonies and a way of forest life through folk beliefs with great fervour. The tribals believe that all forms of life within the groves are afforded protection by the grace of reigning deities. These deities often called 'Mother Goddess' by the local people of the Western Ghats of Maharashtra are in fact in the form of stone lumps smeared with red lead mostly lying under tall trees. The red lead represents the blood of sacrificial victims which were no doubt humans in bygone times. Even today, the Goddess *Shirkai* from the neighbouring grove in Pune district is symbolically offered a human victim every year.

The tribal population inhabiting Meghalaya maintains large tracts of protected forests as sacred groves. In Khasi hills there are three such groves at Shillong Peak, Mawphlang and Mawsmai. The Khasis believe that the sylvan spirits reigning the groves often demand sacrifices. It is a taboo for them to cut any plant or to kill animals inside the forests. The belief is that anybody who causes

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Ecology management through bio-sphere reserves

Sudhir Kumar Soam

The imperative of development is giving precedence to the idea of total eco-system conservation to special interest conservation. The author suggests establishment of more regional research projects and proper co-ordination of works in the field for appreciating the importance and urgency of the growing problem.

OUR COUNTRY IS ENDOWED WITH A particularly rich biological heritage but the most serious threat to this heritage is posed by habitat destruction, expanding agriculture, industry and urbanization. Basically the destruction of wild life is the result of human greed rather than need.

There are varying estimates of the loss of plant and animal species. In India nearly 134 plant species are regarded as threatened as against this, one mammalian and three bird species have become extinct. 7,147 and 15 species of mammals, birds and reptiles respectively have been declared threatened. Furthermore, India is the centre of origin of nearly 117 species of economic plants whose land races and wild relatives are needed for their constant genetic upgrading in order to obtain higher yields.

Realising the importance of wild life resources, our government from time to time has taken various legislative steps. Apart from this, establishment of gene sanctuaries for citrus and pitcher plant, national parks, and now setting up biosphere reserves covering comparatively a larger area.

Biosphere reserve programme was launched by UNESCO in 1971 under man and biosphere programme with the following objectives:

1. To conserve representative samples of ecosystems.
2. To provide a long term conservation of genetic diversity.
3. To promote and facilitate basic and applied research and monitoring.
4. To promote appropriate sustainable management of the living resources in the reserve.
5. To promote international cooperation.

There are about 226 biosphere reserves in 62 countries all over the world covering area of 115 million hectares. In India there is a plan to establish 12 biosphere reserves at the following places covering different geographical regions.

Kaziranga (Assam), Kanha (M.P.), Manas (Assam), Nilgiris (Tamil Nadu, Karnataka & Kerala), Namdapha (Arunachal Pradesh), Nanda Devi (U.P.), North Island of Andamans, Nikrek (Meghalaya), Sunderbans (West Bengal), Thar Desert (Rajasthan), Uttar Khand (U.P.), Gulf of Mannar (Tamil Nadu).

Out of these, Gulf of Mannar will be the first marine biosphere reserve in South-East Asia. Although Gulf of Kutch is the first national marine park. The Gulf of Mannar is inhabited by the endangered "sea Cow" (*Dugona gugor*). Sea grapes and two species of dolphins

Why biosphere reserves?

In India, we have 207 sanctuaries and 45 national parks covering 2.7% of total area of the country, so there is a question, why biosphere reserves? The following arguments may be given:

1. In India variation in size of sanctuary is from 0.61 to 7818 km and of national parks from 0.04 to 3162 km. The biosphere reserves will have size of well over 5670 kms.
2. The limits of sanctuary are not conspicuous but the boundaries of Biosphere reserves are circumscribed by an act of legislature of the state.
3. There is no biotic interference in biosphere reserves, unlike sanctuaries.
4. Unlike sancturies and national parks, tourism is not permissible in biosphere reserves.
5. Research and scientific management is lacking in most of the parks and sanctuaries.
6. Sanctuaries are generally species oriented (*Citrus pitcher* plant, great Indian bustard), national parks are hitched to the habitat for particular wild animal species like Tiger, rhino, lion etc. On the other hand biosphere has such no limit. It is the totality of plants, animals and micro-organisms as an interrelated and interdependent system. Thus "ecosystem-oriented"

It is now widely acknowledged that the conservation of the species is not something that needs to be taken up merely for aesthetic and cultural considerations, important enough though these are but also for the severely practical reasons that the preservation of genetic diversity must be ensured for solving the problems of

human health and welfare which may arise in the future, and can not be even visualised today.

Management of natural resources

Let us now turn to the most important element in environmental protection, the proper management of our natural resources. The situation in this field is most alarming indeed. It must be stated even at the risk of repetition that fully one third of our total land resources—226 million hectare—which has any potential for biotic production are today lying almost compeltely unproductive. Another one third are degraded to a greater or lesser degree and are therefore, only partially productive. The country has lost a great deal of its forest cover. What is more, of the less than 30 mh of good natural forests which remain to us at least 1.5 mh are still being lost every year. In most parts of the country, the loss of tree cover is so severe that it has resulted in an unprecedented shortage of fuel for cooking and is forcing people to use cow dung which is far more valuable as a fertiliser. The continuous denundation of water sheds has stripped them of enormous quantities of precious top soil and has led to excessive run-off losses, premature siltation, recurring floods and droughts.

As far as the protection of wild life is concerned, our record is something to be proud of. There are today over 300 National Parks, Sanctuaries and Biosphere reserves and more are being planned. However, the lessons contained in the incidents of Ranthambhor and Bharatpur should not be lost sight of. It must be realised that the effective protection of sanctuaries, parks and reserves will be possible only if the mounting pressures of increasing human and animal population, on such areas are kept under reasonable control. This, in turn can be done only if the management of land and water resources including forest and pasture is vastly improved and if, in particular, an effective solution is found to the problem of excessive numbers of animals trying to graze off lands which already stand degraded. If these conditions are not fulfilled, in the long run, there is bound to be violant clashes between the guardians of our well maintained reserves and sanctuaries and villagers in search of pastures.

Conclusion

It may be concluded that besides the measures like establishment of national parks and Biosphere reserves, there is an urgent need for coordinated and integrated reserves. There is an urgent need for coordinated and integrated research into the exchanges, processes of matter and energy in relation to the ecosystem as a whole. Regional Research Projects should be established at carefully selected sites to study the different aspects which involve the exchange between vegetation, ecosystem and biospheric data on floristic and architectural structure. Unless these fundamental aspects are understood, assessment and prediction of the influence of different land cover types on the biosphere at local, regional and global level will remain speculative.

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(Contd. from page 11)

ciated with entrepreneurship such as achievement, motivation, power motivation, risk bearing propensity, job anxiety, internal control orientation, participative and promotional leadership behaviour. Successful entrepreneurs were high on these personality characteristics than the unsuccessful entrepreneurs. Hence it can be concluded that positive entrepreneurial orientations may contribute much towards sustaining and overcoming the hazards of the support systems. These personality traits may motivate and energize the entrepreneurs to fight back the problems with determination and confidence. If an entrepreneur lacks such positive trait in him, he falls prey to the unfavourable, problematic and tardy support system, and consequently the unit may gradually develop symptoms of sickness.

Thus development of entrepreneurship can be an effective solution to the problem of industrial sickness in small sector. The agencies for entrepreneurship development programme should draw up elaborate programmes to identify potential entrepreneurs, develop them through a series of training courses, and thus help them to run their enterprise successfully. □

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very much after developing improved technologies whereby the crop productivity in rainfed agriculture can be appreciably increased. It is worth mentioning here that even with the present low level of productivity, about 42 per cent of our food comes from rainfed areas. As has been done in Israil having scanty water resources, the crop productivity in our dry farming areas can be increased manifold with good and efficient water management coupled with other factors of production.

The quantities of water required for different purposes vary over a wide range. It is estimated that the amount of drinking water needed by humans and domestic animals each year is to the tune of 10 tonnes per ton of living tissue. The quantities of water required in industries for washing, cooling and the circulation of materials vary widely from product to product, ranging from one to two tonnes per tonne of product in the manufacture of brick to 250 tonnes per ton of paper and 600 tonnes per ton of nitrate fertilizer. But even the largest of these quantities is small in comparison to the amount of water needed in agriculture. The water requirement for growing the ton corn under irrigation is about 1,000 tonnes. The amount of water required for growing wheat, rice and cotton fibre respectively work out to about 1,500,400 and 10,000 tonnes per ton of crop. □

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Looking Ahead

Asia's first solar pond project

THE EARTH RECEIVES HUGE AMOUNTS of energy every day from the Sun but the problem has all along been that of harnessing this energy in such a way that it is available at the appropriate time and in the appropriate form. Scientific advancements made in this field have helped in the invention of devices like solar batteries and solar cells. Such devices convert solar energy into useful forms of energy. The newest in the field of harnessing this abundantly available non-conventional source of energy is, the concept of solar pond. India is among a handful of countries, where a lot of work has been done in the field of harnessing non-conventional energy sources, especially solar energy. It is, therefore not surprising that India holds the distinction of being the first country in Asia and among the few in the world to have the solar pond project, which is situated in the backward district of kutch in Gujarat, called the Bhuj Solar Pond Project. It is 100 metres long, 60 metres wide and four metres deep

Financed by the Union department of non-conventional energy sources, the project is a joint venture of the Gujarat Dairy Development Corporation, Gandhinagar, the Gujarat Energy Development Agency, Baroda and the Tata Energy Research Institute, New Delhi.

Solar pond is a large scale energy collector with integrated heat storage for thermal applications. In the solar pond, the water in pond is made dense artificially by adding salt to it. This prevents water after getting hot from rising to the top of the pond. The solar energy remains entrapped inside the pond and temperatures in the range of 85 degree Celsius are attained

The solar pond has three distinct layers. The first top layer or the upper convective layer zone, consists of very low salinity water about 50 cm thick. The middle layer is the non-convective zone which acts as an insulation, has salt concentration varying from 26 per cent and is about 1.2 metres to 1.5 metres thick. The third layer or the lower convective zone, where heat is stored has saturated solution of salt and water and is about 1.5 metres thick. The salt used is sodium chloride or Magnesium chloride. To minimise seepage of salt solution to the surroundings, the lining of the Bhuj solar Pond has been done with local materials instead of costly imported liner materials. The Major solar ponds in the world, use specially made plastic liners to minimise the seepage. At the Bhuj pond project, experiments are presently going on in an adjoining small pond of area 225 Square metres.

The performance of the solar pond depends on the density gradient in the non-convective zone that is the middle layer. This density gradient is established b floating layers of water on top of salt solution. Fc monitoring the density of solution at different levels, th solution is extracted with the help of vaccum pumps an then analysed to check its density and temperature. Afte establishing the gradient, the pond is left for two to thre months, for getting heated up. After that, this heat coul be utilised for various applications, like process heat o preheating of boiler fed water, water desalination, powe generation, drying and refrigeration.

The construction of this solar pond project, costin approximately 43 lakh rupees began in July 1987 About 20,000 mandays of employment was generate during the construction of the project. The project is likel to be commissioned by March this year. Once completed the Bhuj Solar Pond project will supply about 20 lakl kilowatt hours of thermal energy per annum, abou 1,25,000 kilo watt hours of electrical energy per annum and about 50,000 litres of potable water per day. Thi project will be among the three largest such projects in the world after the 2,50,000 Square metres pond in Israe producing five mega watt of electrical power and the 3,350 square metres square pond at Elpanso in Texas USA for process heat, power generation and desalinatior of water.

Kutch now becomes the only district in the country tc have besides the Asia's largest solar pond, Asia's firsi wind farm project at Mandvi and Asia's first tidal powei project at Kandla. It is a rare distinction indeed for an area long known for its remoteness and backwardness.

C. Ashok Rao, AIR

Coastal thermal power stations planned

The Central Electricity Authority (CEA) has carried out studies for establishment of large size thermal power stations in coastal areas envisaging economic transportation of coal from far-flung coal mines through the inland waterways and sea. These thermal power stations, aggregating about 15,000 MW, have been identified for location in the coastal areas in the western and southern regions of the country. Some of these power stations have been planned for implementation during the Eighth and Ninth Plan periods.

The CEA is presently engaged on the assessment of mini and micro hydro potential of the country. This work would be completed shortly. Besides, it is also conducting the 14th power survey at present. The power demand forecasting surveys were taken up to collect the necessary data and information which was necessary to form a concrete base for future planning exercises.

Though considerable achievements have been made in power sector in the past few decades to increase power generation, there are still shortages. The Eighth Plan programme envisages a capacity addition of about 38,000 MW. For implementing this programme success-

fully, there is need to avoid time and cost over-runs in the implementation of power projects.

In view of resource crunch, optimum utilisation of the existing facilities is necessary as mere capacity additions are not the answer to the ever increasing power demand. Particular attention needs to be paid to operation and maintenance of power systems and achieving high plant load factor of thermal stations. As transmission and distribution losses continue to be as high as 21 per cent, it is necessary that sysem improvements schemes are implemented vigorously. In order to improve voltage profile of power supply, the programme for installation of capacitors requires to be implemented in a time bound manner.

PIB

Eighth plan strategy for power sector

THE STRATEGY FOR THE EIGHTH Plan for Power Sector envisages a capacity addition of about 38,000 MW, increased emphasis on gas-based projects, setting up of coastal thermal power stations to avoid the transport bottlenecks, regulating demand through better load management, energy conservation, and improvement in the transmission and distribution system. This would require an investment of over Rs. 10,000 crores. As power is a core sector upon which the progress of other sectors depend, the provision of this fund becomes an imperative.

Of the projects presently identified for the Eighth Plan, only those contributing a total of 28,000 MW would fructify during the Eighth Plan period according to CEA estimates. There would, therefore, be a gap of 10,000 MW in achieving the Eighth Plan programme. This potential shortfall could best be made up by short gestation gas based projects, either through domestic gas resources or possibly through the import of liquified natural gas (LNG).

During the last four decades, the power sector has witnessed an average growth rate of 10 per cent per annum in installed capacity and during the last two years itself a capacity of about 10,000 MW has been added. The power sector is thus expected to fully achieve its record Seventh Plan target of 22,245 MW.

Coal production, is expected to cross the 200 million tonnes mark in 1989-90 and 400 million tonnes by the turn of the century, as against 70 million tonnes production at the time of nationalisation in early 70s. Between 1973-74 and 1988-89, the coal projects sanctioned involved an investment of over 10,000 crores. A higher rate of investment would be required in the Eighth and Ninth Plan to enable the coal industry to cater to the ever increasing requirement of coal by the power and other sectors of the economy.

The Department of Non-Conventional Energy Sources has achieved notable successes in developing new and renewable sources of energy technologies as well as in extending them to the field. Over 12 lakhs family size bio-gas plants have been set up by 1989 which have saved a large amount of fuelwood and produced organic manure. Similarly, the installation of over 67 lakhs improved and smokeless chulhas have saved a sizable quantity of wood. Considerable achievements have also been made in the field of solar, thermal systems, wind energy programme and solar lighting systems.

Inspite of the many achievements made in the power and coal sectors and in the field of non-conventional energy sources in recent years, there still exists the need to take steps to increase the per capita availability of energy in the country which is quite low at present.

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any damage to them gets penalised to death by the deities. All forms of wildlife, especially snakes are protected there as the belief goes that a snake if killed, its dead body will breed many to kill the culprit. And the villagers seem to respect such beliefs with great sincerity.

Conclusion

Sacred groves are treasure troves of genetic resources supporting myriad of plants which are either rare in the area or are becoming rare with the deforestation menace. These habitats often serve as a last refuge for arboreal birds and mammals, and no doubt other forest-loving animals as well. But, it is unfortunate that in the recent past, the value system permitting the nurture of such environments has been eroded. As a consequence, these habitats are highly disturbed. Apart from erosion and modifications in the values, sheer economic and other considerations like shortage of fuel wood have forced the local people to encroach upon these forests. However, when forest destruction is at a rapid rate, such religious practices still survive as the hope and a way of conserving the indigenous flora, and every step should be taken to protect them as a part of a system of nature reserves.

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(iii) steps should be taken to ensure that the commodities made available through fair price shops are of clean and of good quality and

(iv) all village panchayats should have powers and authority to check and supervise the working of fair price shops in their respective jurisdictions.

The PDS should be strengthened not only to ensure price stability in respect of essential commodities, but to mitigate the misery of the vast masses below the poverty line. The PDS should form an integral part of the anti-poverty drive. □

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Health & Youth

Is giving up as easy as giving in ?

Habits die hard, they say. Particularly the habit of smoking or chewing tobacoo. We see the grave warning printed on every pack of cigarette. Yet, we also see that they are very much in demand, and sometimes, when the Budget is around, in short supply too. The danger of running the risk of bronchitis, tonsilitis, nay, even cancer, is not deterrant enough for those who love to puff. Smoke they must, whatever the consequences. Believe it or not, it is a fact that every smoker, in one of his saner, sober and reasonable moments, regrets the habit, and announces his desire, even resolve to give up smoking. There are people who do give up smoking for good on the stern advice of their doctor. Some give up for a certain period only to give in later, surrendering to the temptation of tobacco. It is not that those yielding to the temptation are weak in will. They advance the strange logic that some vice is necessary to make life a little colourful, that an element of weakness for something lends a human touch and pulls man out of the orb of angels. The argument may sound poetic but does not stand to reason For, addiction takes its toll and hardly spares any one. In the long run, the smoker is definitely a loser.

It is worth trying to make an effort to give up. Withdrawal is, by and large, painful. For heavy smokers, restlessness and loss of concentration, even headaches, are prominent symptoms. Experts are of opinion that the craving for tobacco persists severely for the first 24 hours in a person who has decided to give up. As the days go by it gets dimmer and by the end of a week there is a complete fade-out. It is during this first week of giving up that one should put up a brave fight, and decide for a definite win. In fact, giving up is a great psychological battle that one has to wage against himself. On the one front, there is a keen desire to be free from, and, on the other, a lurking lure to remain a slave to an addiction. The strategy to cut down the number does not lead to the path of liberation and very soon one finds himself back to square one. Therefore, the best way is to give up totally on the first day. That is the first day of triumph. Next day, a repeat performance of the first, provides good reason to pat your own back, if there is no one else to do so. Remember, a week without smoking is a week of victory and a great assurance that you are on the right track. It is necessary that after this glorious week, parties and meetings where smoking is common, should be carefully avoided. It is in such parties, where every other person is smoking, that one allows himself just a puff for the fun of it and which ultimately leads to habit formation. Once the addiction would reinforce the strength of will and smoking-free (not freely smoking) weeks would turn into months and months into years. Smoking is a costly habit. Freedom from it not only saves the smoker's throat and lungs from harmful soot but results in the much sought after savings also in these difficult days. The hole made, in the purse by the cigarette can be stitched only after it is thrown away, for ever. Is it not better to give up, and soon !

S.Z.H

Checking drug abuse and trafficking

The problem of drug trafficking and its misuse is a multi-dimensional one and has assumed dangerous proportions. India has become a transit point of narcotic drugs because of its geographical location. The Golden Triangle consisting of Thailand, Burma and Laos and the Golden Crescent consisting of Pakistan, Afghanistan and Iran – the major producers of narcotic drugs and psytropic substances in the world – have common borders with India. The Indo-Burmese border is about 1,000 kms long and India's common border with Pakistan extends to 3310 kms.

Illicit drugs from these countries are smuggled into India which not only find their way to lucrative Western markets, but also provide an impetus to consumers of these drugs in the country itself.

The Golden Triangle, the Golden Crescent, and Nepal in Asia and Mexico, Columbia and other countries in the Americas are the chief producers of narcotic drugs. The hilly terrains and deep forests of Burma bordering China and Thailand are famous for poppy cultivation. According to estimates, the production is about one thousand tonnes annually.

The Golden Crescent roughly represents Pakistan, Afghanistan and Iran. The political turmoil in Afghanistan and the revolution in Iran have somewhat adversely affected the growth and trafficking of drugs in this region This however has led to a new development. The tribal areas of Afghanistan bordering Pakistan and the North-Western regions of Pakistan have now emerged as one of the chief producers of narcotic substances. Today, most of the heroin comes to India from this region Nepal is also playing no less an important role in this field, and has become the chief producer of cannabis in this region.

India has also been cultivating opium for meeting her medical requirements under strict licensing. However, in view of the boom in illicit distillation for the preparation of narcotic drugs, illicit cultivation of opium and cannabis has also increased substantially in different parts of the country.

Illegal drug manufacturing units have been unearthed at Bareilly and Ghazipur in Uttar Pradesh, Mandsur in Madhya Pradesh and Andheri in Bombay.

Big money in trafficking

The sinister alliance between terrorists and drug traffickers has become an international problem. The terrorists have found in drug trafficking big money which would enable them to procure more lethal weapons. A kilogram of heroine smuggled into New York fetches as

much as Rs. one crore. People who abet this criminal action are unaware that this may degenerate their own kith and kin in the process.

India enacted the Narcotic Drugs and Psychotropic Substances Act in the year 1985. This law has been amended to give more teeth to it by including provisions like death penalty on second conviction, the forfeiture of property, the non-remission of sentence, the setting up of special courts and the pre-trial disposal of seized drugs.

In fact death penalty is what awaits offenders caught for the first time in several other countries like Iran and Malayasia.

All out attack

The fight against drug trafficking has to be taken up at the regional, national and international level Cooperation from the source countries is a must. India had initiated bilateral talks in this regard with Pakistan in 1987 and arrangements are there with Nepal and Sri Lanka for checking smuggling. Arrangements for exchange of any related intelligence with Burma and Thailand are in the offing. There is also an arrangement with the United States of America through a 'working group on narcotics' for exchange of information in drug related matters. These activities have to be more vigorously pursued in the coming years to contain the menace of drug trafficking. Like all transit countries India is also facing the dangerous consequence of increasing drug abuse among the local population which of course can be checked only with the active cooperation of the people at large. The Ministry of Welfare has been entrusted with the task of Drug Abuse Prevention. It is now an accepted fact that drug abuse has proliferated amongst all classes of people. A situation has now arisen where the problem is not confined to individuals or even to individual families. It has now become a social problem In fact combined with the problem of illicit cultivation of opium, cannabis and such plants from which narcotic drugs are derived is the problem of illicit trafficking of the same alongwith chemically prepared psychotropic substances

Multi-dimensional approach

Several steps have been taken to solve this psycho-socio-medico problem. A community-based approach has been adopted for the purpose to enable society to strengthen itself to deal with this macabre problem It is a multi-dimensional, multi-faceted approach involving medical de-toxification of addicts and their rehabilitation This is because the addict not only suffers from physical dependence but also psychological dependence He has to be motivated to be de-addicted in the first instance. Pre and post detoxification counselling for becoming drug free is very essential.

The modus operandi is to involve voluntary organisations in the whole process which includes counselling, de-addiction and after-care services. Large voluntary organisations in different parts of the country are given grants-in-aid to encourage their activities towards the prevention of drug abuse and for the treatment and rehabilitation of drug addicts.

It is a good augury that more and more voluntary agencies are coming forward to check this menace which has the potential of reducing large sections of our people into burdens. □

Loan waiver scheme

Government proposes to come out with a comprehensive loan waiver scheme for small, marginal and landless cultivators and artisans in the current session of Parliament.

Addressing the Consultative Committee meeting of the Finance Ministry, the Finance Minister Mr Madhu Dandavate appealed to the Members not to Politicise lending and credit programmes and help the Government in building up a code of ethics so that viability and credibility of the lending agencies is maintained. He made it clear that the Government is determined to see that borrowers with adequate repaying capacity and wilful defaulters do not take advantage of the Government scheme which is aimed at benefiting basically small and landless cultivators.

Prof. Dandavate said that the Government is committed to planned development and dispelled all doubts about any Plan holiday in this regard. He, however, acknowledged that since the coming of the new Government coincided with the beginning of the Eighth Plan, a lot of serious deliberations had to be undertaken for the implementation of the Plan in keeping with the national priorities.

Mr Dandavate reiterated Government's resolve to check price rise. While agreeing that some marginal fall in prices could be cause of the seasonal variations, he said that Government is interested in a long term policy for price control.

About the Rupee-Rouble exchange rate, Prof. Dandavate drew attention to the recent visit of a Soviet delegation and bilateral discussions pertaining to the 1978 Protocol. He informed the members that both India and the USSR have agreed that deliberations in this regard will continue in a mutually agreed time frame.

The Finance Minister dismissed the contention of some members that the Government is interfering in the share market and asserted that the Government was not interested in any inter-corporate war. He recalled his recent meeting with the Chief Executives of the financial institutions and nationalised banks, wherein he impressed upon them to work for a healthy corporate atmosphere without compromising with their integrity. He said that stock market climate depends on various factors and the Government will take all steps to maintain its buoyancy and good health. □

From Nook & Corner

They Also Serve...

Call from the distant island

Mariam Bibi of Manarghat village in South Andaman now enjoys palmy days. Hailing from rural Andamans, she has set a rare example among the local folks.

Things were not so even a few years back. She has brought about a sea change in her living as she refused to resign to fate and be content with less. She chose the path of struggle and found a friendly hand for sure.

Her plan found favour and she secured a loan of about Rs. 17,000/- from Syndicate Bank. She set up a poultry farm of 100 layer chicks. The unrelenting struggle paid off soon. Her products found ready market and she refunded the loan with interest.

Today she is the proud owner of a poultry farm. She is happy that she did not count her chicken in dream.

Liability no more

Gurrama was unhappy and brooding most of the time. She considered herself a liability and felt slighted. She could not help it as she was struck by polio at an early age. But she had the grit and hope that things will look up one day and so it did.

Gurrama, 35, who lives at Timmapuram in Prakasan district of Andhra Pradesh in her determined bid for succour came in touch with the local panchayat samiti. The samiti advised her to contact a bank and secure a loan provided under the District Rural Development Agency schemes. With a concessional loan of Rs. 5000/- she began business with a motely stock of cigarettes and sweetmeats near the local recreation club. She makes about Rs. 300/- a month these days.

A tough life no doubt, but she can manage her daily chores.. Gurrama has found a new identity–a new meaning in life.

Self-help

It pays to work together and there is fun in sharing the fruits. Life is much easy now for the folks of Messang Dumba, a sleepy village perched in the interior areas of Changlang District.

The tribal inhabitants of this unsung village were poor all round. Fed up with their wretched luck, they decided to team up rather than grappling with the odds alone. The group of nine Tangra families settled themselves in the plains of Diyun area. They set up a horticulture garden and a co-operative society. Then they forked out to other agricultural persuits and fisheries. Next to come up was a granary. The idea of a granary was a great boon indeed. It helped the inhabitants of the village at times of distress in securing loans and it also helped in marketing their produce. Orange and fishes are marketed in good measure.

Life in Massang Dumba now is not just eking out a living. The message of self help has gone deeper.

They lit the lamp

The last winter vacation was quite different for the 42 student volunteers of S.C.S. College, Puri in Orissa. Instead of whiling away the leisure in idle pursuits, they tropped into the sleepy village of Dhandia nearby for a cause. They had set out on a mass literacy mission. Twentyfive boys and 17 girl students fanned out and set out on different vocations. They focused on teaching 3-rs to the illiterates. They also spoke to villagers on the benefits of mass immunization, pep talk on small savings and environmental sanitation.

A band of enthusiastic volunteers built a house and set up a make-shift pandal in front of the village temple. In this brief spell of ten days, an agricultural workshop was organised and motely meetings held to create better awareness against prevalent social evils. The camp was organised under the Social Service Scheme.

Courtesy: Directorate of Field Publicity, Ministry of Information & Broadcasting. Contributions from Field Publicity Officers; Port Blair, Nellore, AP; Nampong, Itanagar; Puri, Orissa.

Yojana invites articles of topical interest. Anecdotes from true life concerned with any aspect of progress are welcome.

The energy scenario in India

Kavita Gopalaswami

ENERGY IS AN ESSENTIAL INPUT for economic development and for improving the quality of life. India's per capita consumption of commercial energy is only 1/8th of the world average. The non-commercial sources have been used extensively for hundreds of years but in a primitive and inefficient way. The indiscriminate use of renewable non-commercial energy sources, leading to an energy crisis particularly in the rural areas. This is the issue that needs to be tackled with sense of urgency.

It has been found that there is an energy conservation potential of 25% in the industrial sector and 20% and 30% in the transport and agricultural sector respectively. So far, India has not been able to make significant progress in energy conservation. There is a need for an accelerated utilization of renewable energy sources that is economically viable, technically feasible and is socially relevant to the conditions in India.

Much progress has been made in the energy sector management worldwide. It is quite obvious that the responsibility for energy conservation lies on the cooperation of all who produce and consume energy which means just about everyone. There is an energy - conservation potential of 25% in the industrial sector and 20% and 30% in the transport and agricultural sectoı respectively - so far, India has not been able to make effective progress in energy conservation. India can follow a four-path strategy in order to increase overall productivity.

First — By better utilization and using energy efficient appliances, waste of electricity (energy loss) can be cut down and more goods and services can be produced using less energy. Secondly, substituting a more and more efficient form of energy in place of a less efficient form. Thirdly, increasing the dependence on solar and other renewable energy resources. Not only are they non-polluting but, in the long run, become economically because of depleting fuel resources.

A vital role in conserving increasingly precious fuels, coal, oil and natural gas can be played by Electric Utilities (supply authorities) and industrial plants (factories) .Considerable scope in this area also lies in residential and commercial buildings. In rural areas, considerable work can be done with reference to efficient 'chullas' (cooking stoves) and the use of biogas.

Energy audit in India often surprise the industrial sector (which consumes 60% of the total power produced and has a large potential for conservation of energy) that at least 20% saving in energy can be effected without loses of industrial output. It may be noted that substantial savings of 10-15% energy can be achieved with marginal investment only by taking simple measures like proper housekeeping practices, use of energy efficient machineries and equipment, planned lighting and proper maintenance. To meet the object of energy conservation, if necessary, targets will be fixed for achieving efficiency standards on time bound basis. To meet these standards, incentives will be provided for units.

The following are the total consumption requirements for year 2,000 A.D.

Energy	*Total requirement (House Hold, Industry, Transportation & Agricultural Sectors)*
Electricity (Billion KWH)	465.0
Coal (Million Tonnes)	188 0
Oil (Million Tonnes)	72.7
Fuelwood (Million Tonnes)	191.6
Dungcake (Million Tonnes)	105 0
Vegetable waste (Million Tonnes)	59.0

To meet this objective some policy decisions can be suggested :— Firstly, it is essential that we have a complete knowledge of the country's natural resources and their potential to generate energy for use by various sectors of the economy. Secondly it is essential that a thorough analysis of the economics of the resource use be worked out. This of course presupposes the knowledge about the resources and technology of using them. But here, the situation is not that satisfactory. Not only is it that not enough attention is being paid, but equally unfortunate, the situation is that India has been importing knowledge. Many a times, this may not be suited to local conditions. A sound, mature, science - technology mix has yet to emerge.

Thirdly in order to conserve and exploit the natural resources it is desirable that there be an organization of scientists, technologists, economists, administrators etc., not only at the national levels but also at the local level so that opportunities may be recognized and used as quickly as possible. □

Kavita Gopalaswami, Freelance writer, Secunderabad.

Book Review

Cost-Benefit Analysis of Irrigation and Drought Proofing by K. Puttasamaiah, Oxford and IBH Publishing Co. New Delhi, 1989. Pages 175, Rs. 145.

This book is an evaluation of the World Bank (IDA) assisted Project on Drought Prone Area Development Programme (DPAP) 1975-81 taken up in Bijapur District in Karnataka.

The author collected first-hand data from selected villages in eight out of thirteen talukas covered under the programme. Post and pre-project growth in net income, product mix, before and after, changes in consumption expenditure were examined, also the difficulties faced the recipients.

Bijapur district covers an area of 17,069 sq. km. and a population of 23 99 lakh. Density is 141 per sq. km. Climate is generally dry with a wide variation in rainfall pattern' Normal rainfall of the district is 550 mm per annum Jowar and bajra are the principal food crops of the district.

The total outlay on the IDA assisted project was Rs 1169 lakh. 'Project management' i e administration took only about 17 per cent of the total cost. Utilisation of funds was 74 per cent which reflected economic efficiency in the implementation of the project It is not surprising that the World Bank was happy over the conduct of the project.

K. Puttaswamaiah has a firm grip on the economy of Karnataka, being the author of 'Economic Development of Karnataka. From what he describes, there is no doubt about the beneficial impact of the programme under various DPAP schemes.

To illustrate, let us take minor irrigation tanks on which the highest outlay of Rs. 242.96 lakh was made. All the tanks were studied By definition, 'minor' irrigation projects are those whose cost is less than Rs. 1 crore by way of investment. Due to the introduction of the project, the overall intensity of cropping increased from below 90 per cent to 123.03 per cent. Noticeable feature is the change from unirrigated jowar and groundnuts to irrigated jowar and irrigated groundnuts. Irrigated jowar at 173 hectares was larger than unirrigated which was 115 hectares. Incremental income in absolute terms varied from a minimum of Rs. 800 to a maximum of Rs. 3500 per hectare.

Production of land improved in case of soil conservation and dry land farming. Income increase varied between Rs 200 to 400 in case of soil conservation and Rs. 600 to Rs 800 in case of soil conservation followed by adoption of dry land farming

Dairy development programmes yielded a net additional income of Rs. 788 to Rs. 918 per household Dairy programme accounted for 15 to 35 per cent of the total income of the family. In case of sheep development, the net income per house-hold increased by Rs 2000. Sheep development income formed as much as 50 per cent of the family income.

Afforestation and wood lots (small plantation) showed an impressive performance. Income from sericulture worked out at Rs. 6000 in case of big farmers, Rs. 7500 in case of small farmers and Rs. 4000 for marginal farmers per year.

In case of horticulture, more than 50 per cent of beneficiaries were small land marginal farmers Fish catch registered an increase , employment also increased by about 50 man days a year per family under fisheries programme. The limiting factor under various schemes that held up speedy expansion was credit. The author has observed that assets formation was limited, because the sample beneficiaries were in the take-off stage from the 'self-sustaining' to a 'well-off stage'; hence income increase was largely spent on consumption. These observations, however, have policy implications and deserve to be noted It may be true of individual assets, but not community assets created under the programme

The design of the study is commendable and the author has made a meticulous in-depth analysis of the project taking into account the various factors. His appraisal of the DPAP programme in Bijapur district is of a sufficiently high order. The book is highly recommended.

S.M. Shah

JUTE IN INDIA-AN ECONOMIC ANALYSIS BY GAUTAM K. SARKAR PUBLISHED BY OXFORD UNIVERSITY PRESS, CALCUTTA PP 131 PRICE RS. 150/-

An economist of international standing Dr. Sarkar has to his credit quite a spectrum of experience verging over several official and non-official assignments which he held from time to time, in and out of India.

Wedded to the fertile gangatic soil of Bengal and its contiguous eastern area, by birth and education, after Tea, it is Jute in India, which has engaged the attention of Dr. Sarkar, for an economic analysis, forming the subject of this title under review.

The present study is comprehensive enough in as-much-as it traces the history of jute production and its industry as back as 1858 and deals with it up-to-date dwelling upon its various economic aspects in the

ight of world events like the two world wars and India's partition and independence At the same time the volume constitutes a compact treatise on the subject encompassing the whole gamut of the study within eight chapters including the "Prologue-The evolution of India's Jute economy" and the "Epilogue-some basic issues"

There is no denying that next to cotton jute is the only natural fibre grown over a large area of eastern India, chefly in West Bengal. As an industry it involves several aspects like production of raw jute, its processing into a wholesome fibre and manufacture of its cloth and various articles. This has given rise to a "protracted and intensifying imbroglio" deserving "great attention-economic, social and political" It is with this state of affairs in mind that the author has sought to deal with all issues relating to jute as an industry, interalia, production, manufacture, consumption, marketing both domestic and exports, profits, employment potential, managerial efficiency, involvement of State etc And in this crudite gesture he has acquitted himself creditably well

The descriptive acumen of the economist in the author has veritably come to the fore in the matter of a highly readable literary style true to his being a Doctor of Literature. The volume is destined to draw a sizeable readership from students of Economics and Indsutry. The volume is well-produced, although priced on the higher side

R.P. Rahi

Flowering Shrubs in India: S.L. Jindal, published by Publications Division, Ministry of Information and Broadcasting, first edition November 1970, reprint March 1987 pages 175 price Rs. 55/-.

Unlike seasonal flowers with their fleeting glory, the shrubs are capable of brightening up a spot with their foliage or flowers all the year round Shrubs also have a fascinating variety of colour and fragrance of their blooms. It is remarkable that most of the flowers grow on shrubs. In Japan , a country which is right at the top of the gardening world today. the shrubs are the life and soul of land scape gardening In India too, shrub flowers have been adorning the hair of women-folk, painting and carving on the walls, creating woodland in the company of trees and decorating cottages of anicent Indian hermits

During the last three-decaes these have been a growing hunger for knowledge about plants and flowers in particular and gardening in general. This book goes a long way in satisfying this need

This book by a leading Indian horticulturist with varied and wide experience of garden-designing, meet the need to a great extent The style of writing appeals to both technicians and laymen alike Nearly two hundred species of flowering shrubs grown under different climatic and physical conditions in India are covered. A large number of photographs, many of them in colour and all of them taken by the author, have been included to help readers identify the lesser known plants. In fact it is a book of ready reference on various kind of flowering shrubs, their nature and value and the mode of their growth.

Written in a simple and popular style, giving complete and upto date information, the book will be particularly welcomed by people specialising in growing hurbs and garden lovers in general. The glossary at the end of the book is really helpful. A note on flower arrangement is more amusing rather than informative.

S.K. Nayyar

Agricultural Development and Rural Poverty by Ajit Kumar Singh. Published by Ashish Publishing House, 8/81, Punjabi Bagh, New Delhi 110 026. First published : 1987. Pages 368. Price Rs. 250.00

This study deals with the significant changes that took place in the State of Uttar Pradesh in the matter of rural development since 1951. The author has found that there are considerable inter-regional variations in the levels of agricultural development and the degree of its modernisation. Western region, in particular, is at a higher level of development as compared to the other regions of the State. Further, the whole State suffers from a heavy population pressure with a population density of 377 per sq. km. Even more alarming has been the acceleration in the rate of growth of rural population. Such demographic factors did have their impact on the various aspects of rural economy, more particularly in the matter of land utilisation, cropping pattern, under-employment, migration, investment levels, etc.

The author has taken great pains in analysing the various facets of rural development. These have been ably discussed in the twelve chapters of this book. It has been found that there has been a significant increase in output and yield of major crops in U.P. The trend rates of growth and output have been fairly high indicating that a widespread technological breakthrough has been under way in the agricultural sector of the State. The marked improvements have been made possible by the institutional changes on the one hand and technological changes on the other. Yet, however, the State has been considerably lagging behind more progressive States like Punjab and Haryana in the use of modern inputs and the degree of mechanisation. Also, the efforts at redistribution of land through the imposition of land ceilings were half-hearted and in fact, failed to make any improvement in the agrarian structure

Cultivation in U.P. is being done mainly by owner cultivators after the abolition of the intermediaries in the early Fifties. The practice of share-cropping is, however, widespread. An interesting observation made by the author is that small farmers have a larger proportion of their area under irrigation. This enables them to make a more intensive use of their limited land resources. Their only handicap is with respect to heavy and costly

machinery like tractors though it is not of any crucial importance.

Navin Chandra Joshi

All India Directory of Voluntary Agencies in Rural Development, B.R. Siwal, National Institute of Public Cooperation and Child Development, New Delhi, 1984, pp xxxii+ 463 Price Rs. 27.00

Since the growing need for decentralisation in planning is increasingly being felt and the advisability of centralised planning both in its decision making process and implementation of the schemes thus decided are becoming importantly realised, a new awakening among the teeming millions for ameliorating their own depressing conditions is imminent. The integrated rural development programme and the revival and regeneration of panchayati raj are expressions of the same tendency. But in this process the people in dispersed areas and living in unorganised settlements require a different information support, training and organisation facilities and media for articulating their need for incorporation in the national well-integrated planning. The governmental machinery will necessarily be required to supplement its efforts by voluntary agencies of different kinds in a large number.

Voluntary agencies had been engaged in Indian rural regeneration work even prior to Indian independence. At that time the activities were shared between such agencies and political organisations. Since independence, the responsibilities of political parties and their leaders had become greater with regard to other matters of national and international significance. Consequently, the voluntary agencies have now become the lone instruments in this field. Their activities need careful guidance and adequate financial, technical and other administrative support.

Voluntary organisations were very powerful agencies carrying out rural development programmes during pre-independence period. After independence when the Planning Commission undertook the task of national planning, it gave serious thought to their role and in early 70s transferred the work of public cooperation to the erstwhile Ministry of Community Development. Since then a prominent emphasis was laid on the role of voluntary agencies in rural development work. From a survey of 254 prominent voluntary agencies existing in the country, only 24 existed in pre-1947 period, whose number increased to 82 by the end of 1960, during the following decade 67 additional voluntary agencies were organised while during the 1970s 93 more such agencies began operating the country. The growing number of such agencies necessitates that there should be some well-considered policy approach to these agencies and their activities should be well integrated and well publicised in order to harness their resources to the best of national interest.

The National Institute of Public Cooperation and Child Development which had been doing much valuable work and making important studies on the subject has done well in compiling a list of these voluntary agencies. Early in 1981, they had prepared such a documentation which was incomplete in many respects; these shortcomings have been eliminated and information of many additional agencies incorporated in the present documentation The latest compilation brought out the fact that the development of these voluntary agencies had been lop-sided. They had been very important in Maharashtra, Gujarat, Tamil Nadu and Uttar Pradesh which amoung themselves comprised approximately two-fifths of the total of these agencies. It has also been indicated that the voluntary agencies had been operating on national, state and local levels. The national level agencies had been functioning importantly in Delhi, Tamil Nadu, Karnataka and Maharashtra· among them they accounted for more than two-thirds of forty such agencies. States which have been ill-organised in this respect are Punjab, Haryana, Rajasthan, Andhra Pradesh, Mizoram, and Manipur. The lack of interest in voluntary agencies in Punjab and Haryana is understandable becuase the rural areas of these states are fairly prosperous having much development with regard to cooperatives of different kinds. They do not need the assistance of voluntary agencies. But every other state is not so favourably organised. It also comes out from the survey that those states like Maharashtra, Gujarat, Tamil Nadu, West Bengal and Karnataka which have large number of voluntary agencies, they have them working at all the three levels whereas in some other states the activities of the agencies had been localised For example, in Delhi out of the 11 voluntary agencies eight were working at the national level, whereas in Bihar out of 21 agencies in the State 13 were operating at local level and only one at the national level, and in Orissa out of 15 such agencies 11 were functioning at the local level and none at the national level. The advanced states have larger number of voluntary agencies operating at the national level. The documentation clearly shows the need of a evenly balanced organisation development of such agencies.

The NIPCCD has done a valuable documentation work by compiling detailed information on the voluntary agencies. Besides giving other details, it provides information regarding the funding arrangements for these agencies, the type of work programmes and activities undertaken by them, and the regional extension of their field of operation These data can be very useful in streamlining the activities of voluntary organisations and forging a well integrated work programme in their regard. But one would have liked more details on the sources of agencies. The Institute could also collect data on actual achievements of these agencies to show how effective they actually function. The documentation is indeed a valuable source material specially for agencies at decentralised level.

—Bepin Behari

Development Diary

India and Bhutan finalise trade arrangements for 1990–95

India and Bhutan have decided to renew the Agreement on Trade and Commerce between the two countries for the period 1990-95. Under this Agreement, India and Bhutan will continue to have free trading arrangements as before. Trade between India and Bhutan will continue to be transacted in Indian rupees or Bhutanese Ngultrums. This is indicated in the agreed minutes of discussions between India and Bhutan which concluded in New Delhi.

Both sides have agreed to continue with the existing arrangements regarding exit and entry points in India for imports into and exports from Bhutan for the duration of the Agreement. For the first time, Bhutan is also permitting private parties to enter into international trade. It has been agreed that the same facilities in regard to exit and entry points will be available to the private parties for third country trade. In view of the free movement of goods between the two countries, both sides have agreed to continue with the practice of having annual consultations on trade.

E.A.C. recommendations sought on industrialisation

The Prime Minister, Mr Vishwanath Pratap Singh, has urged the Economic Advisory Council to make suitable recommendations on industrial policy. In a letter addressed to the Chairman of the E.A.C. Prof. S. Chakravarty, the Prime Minister said, there is need to accelerate industrial growth while redirecting the pattern of growth to achieve the key objectives of ensuring rapid expansion of mass consumption goods at reasonable prices, faster growth of industrial employment and exports. While making the recommendations the Council may like to consider the scope for simplification of industrial licensing to reduce and streamline the extent of bureaucratic control over small and medium projects, the Prime Minister said.

Electronic research centres

Four Electronic Research & Development Centres are proposed to be set up at Calcutta, Lucknow, Mohali and Pune. These centres will provide research and development support to the industries in the region in general and small scale industries in particular. These centres will play the nodal role in the region for technology development and maintain close linkages with other national laboratories. These four research centres will be autonomous bodies registered with respective registrars of cooperative societies. The Electronic Research and Development Centres will be jointly financed by the Department of Electronics and the respective State Electronics Development Corporations. They will be equal partners in funding.

Unani Drugs

The Government has set up a Unani Pharmacopoeia Committee consisting of Unani and other sciences' experts to prepare an official formulary and pharmacopoeia on Unani drugs.

The first part of National Formulary of Unani Medicine, containing 441 compound formulations have already been published.

The Council for Unani System of Medicine has achieved promising results in preventing and curing the diseases like Vitiligo, Rheumatoid Arthritis, Jaundice, Infective Hepatitis, Malaria and Filariasis.

Since the inception of the Council in the year 1978, it has been able to finalise standards for 100 single and 260 compound drugs. The Council has a network of 29 institutions and units functioning in different parts of the country.

It has also embarked upon a programme to clinically screen some Unani drugs for their contraceptive efficacy as described in the classics of Unani Systems of Medicine.

Courtesy: PIB

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Naya Paisa for a Naya Age

Amongst the earliest decisions taken by the Government headed by Prime Minister Nehru was to introduce the metric system in India. "The decision to adopt the metric system", he wrote, "is the right one from every point of view. For the scientist, the technician and the statistician, it is the only system that can be used." We could safely add also for the layman and the child at school.

The new system of currency which comes into force next week literally kills two birds with one stone. It will kill the pie which is a pretty useless coin anyhow. It buys nothing and has not been minted for the last fifteen years; few if any children of the present generation will have ever seen it. Nevertheless it continues to plague their books of arithmetic and our budgets. It also kills the anna which has been a sort of middleman in ordinary life. With these two dead–they will linger on for three years–the paisa will come into its own. It is odd that the one coin with which we are not familiar and which has served us most should have remained unrecognised all these years. Now it will be the naya paisa and the rupee, without the rupee changing its value even by a fraction of a pie. The new system will be simpler and more sensible than the old. It is being introduced at the right time when we are on the threshold of a vast plan of industrialisation.

The first system of calculation to be changed was the measurement of temperature—from the confusing Fahrenheit to the simpler centrigrade. Currency is the second and much the bigger change. Reforms in our system of weights and measurements will follow. Do you know that in a survey of 1100 of our villages, 143 different systems of measurement were found to be in practice? That over 100 different kinds of maunds are known to exist in the country? That the seer can vary from 8 to 160 tolas from one State to another and still be a seer? All this chaos and confusion is to end.

Central Warehousing Corporation

Although India is mainly an agricultural country, marketing of agricultural produce is an old, unsolved problem. On its solution largely depends the degree to which credit facilities can be made available to the farmers.

The Second Five Year Plan has a scheme to solve it by establishing a chain of about 100 warehouses all over India. The State Governments will also be encouraged to start State Warehousing Corporation in their territories. Among the States alone about 250 warehouses are being planned.

A beginning in this direction was made when the Agricultural Produce (Development and warehousing) Corporation Act was passed in 1956. On March 2, 1957 the Central Warehousing Corporation was brought into existence.

From lab to the land

"The country needs educated men to introduce modern methods of farming. They have no right to settle down in cities or take to professions which are already over-crowded and are not productive." These were the sentiments which made Mr. Narsimhappa Challa, B.A., L.L.B., an established lawyer in Bellary, throw up his practice and settle several miles away near a tiny village called Nelludi.

He chose the right time to do so. Just as the waters from the Tungabhadra brought vast acres of virgin land into production, Mr. Challa decided that the best chance of introducing the latest methods of agriculture was to set an example at the very beginning. In the neighbouring villages, the Government set up demonstration farms under the guidance of an enterprising young Agriculture graduate, Makhdum Hussain. For Nelludi the demonstration farm is a few acres around Mr. Challa's idyllic little cottage. He has set apart a portion of his land to train educated unemployed young men who want to settle on the land What the Bar of Bellary has lost, the peasants of Nelludi have gained.

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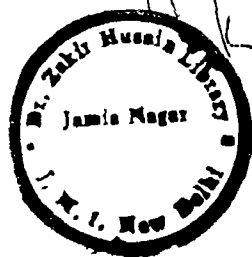
Development Diary

International price reimbursement scheme modified

Major modifications have been made in the International Price Reimbursement Scheme (IPRS) available for exporters of engineering goods. Under it, exporters are reimbursed the difference between domestic and international prices of iron and steel used in export production. So far, no positive value addition in terms of net foreign exchange earnings in export realisations was necessary. Minimum levels of value addition have now been prescribed to qualify for reimbursement. For items manufactured from alloy steel, non-alloy steel and high carbon wire rod, a minimum value addition of 33% over the value of steel content at international prices has been prescribed. In respect of items consuming mild steel, pig iron, cast iron and steel melting scrap, the minimum value addition prescribed is 25%. For exports made out of a combination of iron and steel of the above two categories, value addition of 33% has been prescribed.

To help exporters ensure fulfilment of prescribed value addition, the new scheme provides for timely announcement of international prices. In order to rationalise the existing system of price determination, certain changes have been made in the mode and periodicity of price determination. With effect from First March, this year, domestic and international prices of all varieties of iron and steel will be notified on a monthly basis, doing away with the existing practice of announcing alloy steel, non-alloy steel and high carbon wire rod prices on a quarterly basis.

The method of calculation of value addition has been modified to eliminate difficulties experienced by some exporters in obtaining reimbursement for iron and steel items for which prices are not specifically mentioned under IPRS but for which reimbursement is being made under a residual category.

To plug loopholes, the scheme has also been modified to provide for reimbursement being made for certain specified items like pickaxes, crow bar etc. on the basis of mild steel consumption only as such items are predominantly made out of mild steel only.

In order to eliminate difficulties being experienced by exporters of forging quality carbon steel products, the condition imposed earlier about forging process being used for manufacture of end product to qualify for reimbursement as forging quality carbon steel, has been withdrawn.

Simplification of export documents

The Government has approved the introduction of simplified export documents which will lessen the burden of the exporters and give a substantial push to the country's ongoing export drive. Adoption of the new documentation system is expected to enable the exporters to save at least 50% of the time and cost presently spent by exporters on documentation. It will also help in expediting decision making process.

Currently, Indian exporters are required to submit about 25 documents to various agencies and authorities merely to ship goods. Each document has to be individually prepared. The new system has sought to standardise these documents and also to align them to each other, on the basis of the United Nations key, which has been adopted by most of India's trade partners. Thus, instead of typing out 25 documents, exporters would need to prepare basically only two master documents.

The new system also includes simplification and relaxation of related procedures, which will further reduce the delays and time component currently involved in export effort. It is expected that as a fall-out of the introduction of the new system, a self-propelling process towards further rationalisation of documentation and procedural requirements would be set in motion in all the concerned organisations.

India and USSR agree for repatriation of rouble profits of the joint ventures

India and USSR have reached an understanding regarding repatriation of Rouble profits of the joint ventures. Now, Indian partners can utilise their profits not only for exports, products manufactured by the joint ventures and for investment in other joint ventures in the USSR but also for repatriation to India under the Rupee payment arrangement established between the two countries.

Where the products of the joint ventures in USSR result in substitution of imports from General Currency areas, the Soviet side will devise further means for repatriation of Rouble profits due to the Indian partners.

It has been decided that talks will continue on the categories of joint ventures to which this understanding would apply as also on certain other issues concerning subscription of equity capital of the joint ventures. The path is now paved for further intensification of cooperation between the two countries in the matter of joint ventures.

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Tax Proposals : Excerpts

LET ME BEGIN WITH MY proposals in respect of direct taxes. I am introducing certain major changes in the rate structure for personal income-tax with a view to providing relief to low and middle income groups, and to make the savings linked incentives more equitable for taxpayers in different income slabs. I am raising the exemption limit for personal income taxation from Rs. 18,000 to Rs. 22,000. Roughly, one million persons will go out of the tax net as a result of this change.

As further measure of relief to the lower and middle income groups, I am extending the lowest rate of 20% from the present limit of Rs. 25,000 to Rs. 30,000.

Last year, a surcharge at the rate of 8 per cent was introduced for financing employment programmes. This will now be applicable beyond taxable income of Rs. 75,000 as against the present limit of Rs. 50,000.

I propose to introduce a system of tax rebate on the gross amount of savings under section 80C. Under the new system, a person contributing to provident fund, life insurance, National Savings Certificates, etc. as earlier, will now be entitled to a tax rebate calculated at the rate of 20%, on such savings. The maximum tax rebate allowable will be Rs. 10,000 generally and Rs. 14,000 in the case of authors, playwrights, artists, musicians, actors, sportsmen and athletes. This is broadly equivalent to the maximum relief available now. All persons will get the same amount of tax benefit on a given amount of savings, irrespective of their levels of income. The low income taxpayer will benefit.

Let me illustrate the impact of the above proposals. A person with a salary income of Rs. 3,500 per month, i.e. Rs. 42,000 per year, who saves Rs. 8,000 per year in provident fund and insurance presently pays Rs. 1,000 per year as tax. Under the new dispensation, he will not have to pay any tax at all. The upper income group will have to save Rs. 50,000 to get the full relief of Rs. 10,000. Under the old system they would have got the same relief by saving only Rs. 39,500.

As a further incentive to save, I propose to increase the limit available for the savings incentives under section 80CCA from Rs. 30,000 to Rs. 40,000. Since the savings under this are on a 'netting' principle and are added back to income when withdrawn, the present system of deduction from taxable income will continue.

In addition to this, the Equity Linked Savings Scheme (ELSS) announced last year has now been finalised on a 'netting' principle. Investment in units under the Scheme, will be eligible for deduction upto a maximum of Rs. 10,000 from the total income. The annual return on the investment in the units will be eligible for tax concession under section 80L. On repurchase of the units by the Mutual Funds, the capital amount representing the cost of the units will be taxed as income in the year of repurchase and the excess will be liable to tax as capital gains. The Equity Linked Savings Scheme will eventually replace the present deduction under section 80CC. Meanwhile, this provision is being extended for investments made upto 31st March, 1991.

In an effort to mitigate in some small measure, the hardship of parents or guardians of physically handicapped or mentally retarded persons with incomes upto Rupees sixty thousand per annum, I propose allowing a deduction of Rs. 6,000 from the parent's or guardian's total income to cover expenses on medical treatment, training and rehabilitation of such persons.

I propose to increase the deduction in respect of professional income from foreign sources, available to authors, playwrights, artists, musicians, actors and

sportsmen including athletes, from the existing rate of 25% to 50% of the income or 75% of the foreign exchange brought into India, whichever is higher. In the case of professors, teachers and research workers also, the present provision has been liberalised to allow deduction of 75% of the foreign exchange brought into India.

Corporate taxation

To ensure better tax compliance, I propose a twin strategy. I am abolishing major incentives like Investment Allowance and Investment Deposit Account with a view to closing the escape route for the corporate sector to go out of the tax net ; and having closed that route, I propose to fix the tax rate for widely held domestic companies at 40% with corresponding changes in rates for other domestic companies. This twin strategy will raise the effective tax rate and will also give substantial additional revenue of Rs. 800 crores.

The only major deductions that will now be permitted are those relating to foreign exchange earnings and for setting up new industrial undertakings. The deduction for setting up new industries is being raised from 25 per cent to 30 per cent in the case of companies and from 20 per cent to 25 per cent for others. The period during which the benefit can be availed of is being extended from 8 to 10 years.

With the abolition of the major exemptions, there is a case for also removing the special provision regarding tax on minimum profits contained in section 115J of the Income-tax Act. Accordingly, I propose to discontinue that provision with effect from the assessment year 1991 92.

I am also introducing an important change in the taxation of intercorporate dividends. At present 60% of the dividend income received by a domestic company from another is exempt from tax. There is a tendency towards holding of personal wealth in the form of companies which are in effect closely-held. In order to encourage genuine investment activity while at the same time discouraging the use of corporate framework for holding personal wealth, I propose to exempt dividends received by domestic companies from other domestic companies to the full extent to which they themselves declare dividends during the relevant period. However, scheduled banks and public financial institutions would, in substance, continue to be governed by the provisions of section 80M as they presently stand.

Many small scale industries are organised as partnerships. I propose to raise their exemption limit from Rs. 10,000 to Rs. 15,000 and to lower the tax rates suitably.

Degraded areas

In order to promote afforestation, I propose to extend the provisions of section 35CCB and section 80GGA to taxpayers who contribute to a fund or programme for afforestation approved by the prescribed authority.

As in the case of personal income tax, I propose to continue the existing surcharge of 8% on corporate taxpayers also on all incomes above Rs. 75,000.

I also propose to make a major change in the taxation of gifts. I have decided to substitute the present gift-tax on donors with a donee based gift-tax. Any person, who claims his assets or his expenditures as having been financed from gifts, will now be liable to a gift-tax on a graduated scale. Thus he will have the pleasure of transferring a part of his bounty as a gift to the exchequer. The primary purpose of the donee-based gift-tax is not to raise revenue but to check tax evasion and conspicuous consumption. In order to take care of legitimate gifts, there will be a basic exemption limit of Rs. 20,000 per year. In the case of total gifts exceeding Rs. 20,000 but not exceeding Rs. 50,000, gift-tax will be levied at 20 per cent; for total gifts exceeding Rs. 50,000 but not exceeding Rs. 2,00,000 at 30 per cent ; and for total gifts exceeding Rs. 2,00,000 at 40 per cent. In addition, I also propose to allow for a substantially higher limit of rupees one lakh for gifts received from all sources by an individual at the time of marriage. Further, gifts received in foreign exchange through official channels will also be exempt.

I propose to make the new system applicable in respect of gifts made on or after 20th March, 1990. Consequently, the existing Gift-Tax Act taxing the gifts in the hands of donors will cease to be operative in respect of gifts made on or after that date. Legislation to give effect to this new scheme is proposed to be introduced during the current session of Parliament.

As I mentioned earlier, there will be a gain in revenue from corporate tax to the extent of Rs. 800 crores. The loss in revenue from income-tax other than corporate tax after providing for better compliance is expected to be Rs. 250 crores. There will, therefore, be an additional accrual of Rs. 550 crores in respect of direct taxes. Sir I shall now deal with my proposals relating to indirect taxes.

First, I shall take up the proposals which are in the nature of concessions in customs and excise duties.

Taxes on agriculture

Agriculture is a priority area in our framework of development and tax rates are already kept low on most of the inputs used in this sector. Specified pesticides and pesticide intermediates enjoy concessional rates of import duty of 70% and 60% respectively. I propose to reduce the import duty on a few more specified bulk pesticides and pesticide intermediates to these levels. The proposal involves a revenue loss of about Rs. 16 crores.

In order to encourage the use of rape-seed oil and mustard oil, of which there is an abundant production in the country, I propose to completely exempt refined rape-seed oil and mustard oil which are currently attracting excise duty of Rs. 750 per tonne. The revenue loss on account of this proposal is estimated to be Rs. 8 crores.

I propose to remove excise duty on pickles altogether in the hope that this will lend some flavour and spice to my budget

Excise duty on coffee is presently levied at the rates of Rs. 78 and Rs. 105 per quintal depending upon the variety. As a measure of relief to the coffee growers, I propose to reduce the duty to a uniform level of Rs. 50 per quintal. This concession involves a revenue loss of Rs. 4 crores.

Marine products constitute a major thrust area of the country's exports In order to make imported prawn feed more economical, I propose to reduce the duty on this item to 25%. In order to help modernisation of food processing and sea food industries. I propose to extend the concessional rate of import duty of 40% now available to certain specified machinery, to a few more items.

With a view to reducing the cost of cattle feed, I propose to completely exempt molasses used in its manufacture from the whole of excise duty. I also propose to prescribe concessional import duty of 40% in respect of certain items of equipment required in cattle breeding and dairying.

I propose to exempt fully foot-valves of certain specifications from excise duty in order to promote efficiency of agricultural pumps

Concessions for packaging

Presently. kraft paper and kraft paper-board used for apple packaging in Himachal Pradesh, Jammu and Kashmir and Uttar Pradesh are exempted from excise duty, as a measure to conserve forest wealth. I propose to extend this concession to packaging of all horticultural produce all over the country. This is expected to result in a revenue loss of Rs. 5 crores.

I propose to extend full exemption from excise duty to hand made paper and paper board manufactured by units of Khadi and Village Industries Commission even when power is used in the process of sheet forming. I also propose to enhance the value limit for the purposes of excise duty exemption on footwear from Rs. 75 to Rs. 100 per pair in respect of such footwear made by units under KVIC as well as those run with the assistance of IRDP.

I also propose to extend some more fiscal concessions to this sector. Presently, small scale units are allowed complete exemption from excise duty in respect of clearance of goods upto a value of Rs. 15 lakhs in case such goods fall under only one Chapter of the Central Excise Tariff. I propose to increase this value limit to Rs. 20 lakhs. The total exemption available to goods cleared upto a value limit of Rs. 30 lakhs, when such goods fall under more than one Chapter of the Tariff, will remain unchanged. The increase in exemption limit for small scale units involves a revenue loss of Rs. 67 crores. The scheme of notional credit of 5% in the case of inputs manufacutred in the small scale sector is also being continued for one more year from the 1st April, 1990 Further, the limit of value of clearance of goods in a financial year for the purpose of obtaining a central excise licence is being increased from the existing level of Rs. 10 lakhs to Rs. 15 lakhs. It has also been decided that the licensed small scale units having value of clearances upto Rs. 20 lakhs in a year will henceforth be required to furnish only quarterly returns of production, clearance and duty payment. These changes are proposed to take effect from the 1st April, 1990.

In order to reduce the prices of life saving drugs, I propose to exempt certain finished formulations containing Rifampicin, which is an anti-TB drug, from central excise duty Specified bulk drugs which are required for the manufacture of certain life saving medicines are also being exempted from customs duty. I propse to reduce the import duty on certain specified drug intermediates to 90%. These proposals involve a loss of revenue of nearly Rs. 17 crores.

I propose to reduce the import duty on aseptic form fill seal machines for use by that industry from the present level of 147.25% to 40%.

Certain life saving equipments are eligible for complete exemption from import duty. I propose to extend this benefit to certain specified instruments and implants for physically handicapped persons. I also propose to give some concessions in customs duty to components of hearing aids.

Homoeopathic medicines

I propose to reduce the import duty on homoeopathic medicines as well as on certain inputs for the manufacture of such medicines. This involves a revenue loss of about Rs. 5 crores.

With a view to giving an impetus to industrial production and to boost exports, I propose to grant some concessions to capital goods and machinery.

There has been a feeling that our exports are not able to face international competition due to high cost of imported capital equipment. A scheme is being worked out for making available to registered manufacturer-exporters the facility of import of capital goods at concessional rate of duty against suitable export obligation. Broadly, capital goods upto a specified value limit

imported under the scheme would be eligible to a concessional import duty of 25%. This will be subject to the condition that goods of a minimum of three times the value of the imported capital goods are exported within four years from the date of importation. The details of this scheme will be announced in the new Import and Export Policy.

Concessional import duties have been prescribed from time to time on machinery required for various export thrust sectors. I propose to extend the concession to specified items of machinery for rubber belting industry and forged hand tool industry. The concession involves a revenue loss of Rs. 8 crores.

In order to promote investment and strengthen indigenous capital goods sector, I propose to reduce the excise duty on such machinery on a selective basis by 5 percentage points. This concession will lead to loss of revenue to the extent of Rs. 60 crores.

With a view to encouraging industrial units to invest in quality upgradation and strengthen quality control, I propose to prescribe a concessional import duty of 40% on specified instruments and equipments. The proposal involves a revenue loss of Rs. 30 crores.

Environmental protection

In the interest of better environmental protection and pollution control, I propose to extend the present concessional customs duty of 40% to some more specified air and water pollution control equipments. At the same time, I propose to reduce the excise duty on certain specified pollution control equipments from 15% to 5%.

Heavy investments are required for the upgradation of the facilities available at the airports. I propose, as a measure of relief, to reduce the import duty on navigational, communication, air traffic control and landing equipments imported by the National Airports Authority of India to a level of 25%. The proposal involves a revenue loss of Rs 7.5 crores.

In order to promote establishment of telecommunication network in rural areas, I propose to reduce the excise duty on specified telecommunication equipment from the existing rate of 20% to 15%. This will lead to a revenue loss of Rs. 15 crores.

I propose to reduce the excise duty on dry cell batteries from 35% to 30%. The relief will involve a revenue loss of Rs. 10 crores.

It has been presented that film industry is facing difficulties on account of video piracy. In order to help combat this menace by simultaneous release of prints in a number of cinema houses, I propose to fully exempt feature films from excise duty. The proposal would involve a revenue loss of Rs. 8 crores.

In order to give relief to the newspaper industry, I propose to reduce the import duty on standard newsprint by Rs. 100 per tonne.

As a matter of administrative simplification, I propose to shift the incidence of excise duty from truck body building activity, which is mostly in the unorganised sector, to motor vehicle chassis.

Now I move on to a package of proposals relating to the textile industry.

Textile industry

As a first step, I propose to transfer the whole of the basic duty on cotton fabrics to yarn. As the hank yarn used by handlooms will continue to be exempted, the price differential between hank yarn and cone yarn would be widened and this should greatly improve the competitiveness of the handloom sector. The major changes are :

— imposition of a basic excise duty of Rs 4.40 per kg on PTA and Rs 3.60 per kg. on DMT which will yield Rs 80 crores,

— increase in the basic excise duty on polyester filament yarn from around Rs 50 to Rs 55 per kg and on nylon filament yarn from around Rs 37 to Rs. 50 per kg yielding additional revenue of Rs 156 crores.

— increase in the basic excise duty on viscose staple fibre from around Rs 7 to Rs 8.50 per kg leading to a revenue gain of Rs 15 crores,

— reduction in the basic duty on polyester staple fibre from around Rs 14 to Rs 8.50 per kg involving a revenue loss of Rs 65 crores and

— some reduction in the basic duties on various polyester blended yarns.

Import duties reduced

In order to ensure a measure of price discipline in this industry, I propose to reduce import duties,

— on DMT and PTA from 195% to 150%

— on NFY from 130% to 100%,

— on PFY from 205% to 180% and

— on VSF from 55% to 40%

The revenue loss from these duty reductions will be marginal since actual imports are not expected to be significant.

Keeping in view the sharp decline in the international price of MEG, I propose to raise the import duty on this item from 90% to 150%. This will result in an additional revenue of nearly Rs. 48 crores.

For providing cheap cloth to the weaker sections of the society and to encourage the development of the handloom sector, additional excise duty under Textiles

and Textile Articles Act was levied in 1978. The present rate of this duty is generally 13.64% of the basic excise duty. In addition to this duty, a cess at the rate of 2.5 paise per square metre is levied on fabrics for the purpose of developing khadi and other handloom industries. I propose to merge both these levies by raising the additional duty from 13.64% to 15% of the basic excise duty.

The jute industry needs encouragement for diversification of its products. I propose to fully exempt jute blankets, floor coverings, mattings and bleached, printed and dyed jute fabrics from excise duty. Full exemption available to jute yarn supplied to KVIC units is also being extended to the handicraft sector.

Some revenue earning measures

Cigarettes

The increase in duty will be 15 paise for the cheaper cigarettes and 75 paise in the case of costlier cigarettes per packet of ten. There will be no change in the duty rate on non-filter cigarettes of length upto 60 mm. I would hasten to add that I do not propose any change in the excise levy on bidis. This measure is estimated to yield additional excise revenue of Rs. 131 crores.

Some sympathetic increase in the excise duty rates on pan masala is also being made to yield additional revenue of Rs. 6 crores.

I propose to increase the excise duty on cocoa and cocoa preparations from 10% to 15%, on jams, marmalades etc. from 5% to 10% and on icre cream from nil to 10%. The revenue gain from these measures will be of the order of Rs. 26 crores.

I propose to increase the excise duty on certain items like microwave oven, washing machine, certain sophisticated varieties of audio systems, video cassette recorder and player, electronic games and relatively high priced cooking ranges.

I propose to increase the excise duty on motor cars from 35% to 40%. This measure will yield additional revenue to the tune of Rs. 79 crores. I do not propose to make any change in the excise duty on two wheelers and tractors.

The specific duty rates of excise on refrigerators, air-conditioners of capacity upto 1.5 tonnes and automotive gas compressors are being increased. I propose to enhance the excise duty on car air-conditioning parts including those forming the kit from 40% to 65%. These proposals involve a revenue gain of Rs. 14 crores.

Tyres and tubes, except for a few varieties, are currently subject to central excise levy at specific rates. On these items, owing to recurring increase in prices, the duty incidence in ad valorem terms has come down. As a corrective measure, I propose to raise the existing specific rates on tyres and tubes. However, I do not propose increase of duty on tractor, trailer and two wheeler ty and tubes. This, along with certain other rationalisa measures, is likely to yield a revenue gain of about Rs. crores.

I propose to raise the specific rates of basic dutie excise on iron and steel. The increase will generally Rs. 500 per tonne in the case of stainless steel items Rs. 100 per tonne in the case of other items. In the cas downstream dutiable products, MODVAT credit wo continue to be available. The revenue gain from proposal is of the order of Rs. 104 crores.

Presently, the total rate of import duty on most of stainless steel and articles thereof is 345%. I propos bring down the rate to the level of 200%. The proposal regard to customs duties on these and other steel items expected to result in the loss of revenue to the tun Rs. 10 crores.

At present, the country has a surplus productio aluminium. In order to discourage imports, I propos increase the basic customs duty on aluminium ingot Rs. 3500 per tonne.

Major plastic raw materials attract excise c ranging from 30% to 65%. However, the rate of duty polystyrene is only 20%. As a measure of rationalisat I propose to increase this rate to 30%. The propos expected to yield additional revenue of Rs. 5 crore

I propose to increase the basic excise duty on pa grade PVC used in the manufacture of leather cloth fr Rs. 15000 to Rs. 20000 per tonne as an anti-evas measure. The excise duty rates on PVC coated text are also proposed to be revised upwards. These measu are expected to yield Rs. 17.5 crores.

At present, various categories of paints and varnis are liable to excise duty at different rates ranging betw 15% and 35%. I propose to rationalise the rates keeping only two levels of duty at 15% and 30% against the present five rates. The proposal invol prescribing a uniform excise duty of 15% on insula varnishes and water based paints and 30% on oil ba and plastic based decorative paints. The proposal wo yield a revenue of Rs. 9 crores.

Currently special excise duty at the rate of 1/20th the basic duty of excise is being levied on indigenou produced goods. However, for the computation of co tervailing duty of customs on imported goods, spe excise duty is not taken into account. I do not think su distinction is warranted. I propose to subject the impo goods to countervailing duty on the basis of the ex duty inclusive of special excise duty. This proposa expected to yield customs revenue of Rs. 60 crores

The Baggage Rules relating to free allowance ad ssible to passengers arriving from foreign countries being modified. The general free allowance is be increased from the existing level of Rs. 1250 to Rs. 2(per passenger. There will be a uniform duty rate of 25

for baggage in excess of this limit as against the existing 175% and 245%. I also propose to prescribe a uniform duty rate of 25% on specified articles brought by passengers coming from abroad after a period of stay of more than one year, subject to certain conditions. The revised measures will take effect from the 1st April, 1990.

Provision is being made for continuance of auxiliary duty of customs and special excise duty at the existing rates.

As the Honourable Members are aware, Inland Air Travel Tax was introduced in the Budget of last year. The tax is leviable at 10% of one component of the total air fare, namely, basic fare. I propose to levy the tax at the existing rate on the full air fare. The estimated revenue gain from the proposal will be Rs. 15 crores.

Petroleum products

Keeping in view the interests of the common man, there will be no increase, in prices of kerosene and LPG cylinders There will also be no increase in prices of naphtha for fertilizers and other uses, natural gas, furnace oil for industry, bitumen for roads and low speed diesel oil for farmers. Among the selected items whose prices are being revised with effect from this midnight are motor spirit, high speed diesel oil and aviation turbine fuel for domestic users. While the price of motor spirit is being raised by Rs. 1.25 per litre ex-storage, the price of high speed diesel oil will go up by 54 paise per litre. The price of aviation turbine fuel will increase by Rs. 1320.45 per kilolitre. The increase in retail prices will vary from State to State depending on transportation charges and the incidence of local taxes and levies. The import duty on crude oil is being increased from Rs. 1060 to Rs. 1500 per tonne. This will yield a revenue of Rs. 836 crores.

Excise duties

The proposals in regard to changes in the excise duties outlined above are likely to yield additional revenue of Rs. 778.63 crores. The concessions and reliefs announced aggregate to Rs. 388.44 crores. Out of the net additional shareable revenue from excise duties of Rs. 390.19 crores, the centre's share would be Rs. 217.12 crores and the States share is Rs. 173.07 crores.

My tax effort in respect of customs duties will bring in Rs. 979.79 crores. Net of reliefs amounting to Rs. 144.76 crores, the additional revenue from customs duties accruing to the Centre will be Rs. 835.03 crores. Besides, the changes in the Inland Air Travel Tax would yield Rs. 15 crores.

Postal rates

The rate of printed postcard, which is used mainly for business purposes, is being raised from 40 paise to 60 paise, of inland letter card from 50 paise, inclusive of the stationery charge, to a consolidated amount of 75 paise and of envelopes to a uniform rate of Re. 1 for every 20 grams without any stationery charge. The revisions poposed are estimated to yield an additional revenue of about Rs. 207 crores in a full year and about Rs. 172 crores in 1990-91.

The budget deficit at the existing rates of taxes would be Rs. 9,165 crores. Taking into account the net additional yield from the modifications proposed in direct and indirect taxes and the revised postal tariff, the deficit for the next year is estimated at Rs. 7,206 crores. This deficit is substantially lower than the deficit of Rs. 11,750 crores in the revised estimates of 1989-90. The budget deficit for the current year is estimated at Rs. 7,337 crores. □

Official

The highlights of the Union Budget proposals for 1990-91

1. **Income Tax exemption limit to be raised from 18000 to 22 thousand rupees.**
2. **Eight per cent surcharge on higher incomes to continue beyond 75 thousand rupees.**
3. **Bank loans to farmers upto 10 thousand rupees as on 2nd October last year to be waived. The scheme will not be extended or repeated.**
4. **The Gold Control Act to be abolished.**
5. **No increase in prices of kerosene and LPG cylinders.**
6. **Motor spirit and high-speed diesel to cost more.**
7. **Some life-saving drugs to become cheaper.**
8. **Postal stationery are to cost more. Post card spared.**
9. **Smokers to pay more for filter cigarettes and pan masala becomes dearer.**
10. **Washing machine, VCR and high-priced cooking range to be costlier.**
11. **Pickles, rape-seed oil, mustard oil, and jute fabrics exempted from Excise-Duty.**
12. **Dry Cell Batteries to be cheaper, while motor-cars to be dearer. Two wheelers and tractors spared.**
13. **Import duty on some more bulk pesticides and standard newsprint reduced. Stainless steel articles to be cheaper.**
14. **Feature films exempted from Excise Duty.**
15. **An Employment Guarantee scheme to be launched on an experimental basis.**

Courtesy: AIR

Railway Budget

Fare Proposals : Excerpts

IN THE BUDGET ESTIMATES for 1990-91, the Gross Traffic Receipts for the year, at the existing level of fare and freight rates, are estimated at Rs. 11,168 crores recording an increase of Rs. 436 crores over the Revised Estimates for the current year. This increase in traffic receipts is based on an estimate of 3% growth under passenger and an additional revenue earning freight loading of 14 million tonnes over the current year's revised target of 311 million tonnes. Other Coaching and Sundry Other Earnings are expected to rise by 2% and 4% respectively.

The estimate of Ordinary Working Expenses has been placed at Rs. 8,241 crores involving an increase of Rs. 794 crores over the Revised Estimates for the current year. The higher provision takes into account the effect of annual increments, payment of Dearness Allowance, costs related to higher level of activity as projected, full impact of increase in power tariff as also increased outgo on account of lease rental payable to the Indian Railway Finance Corporation.

Contribution to Depreciation Reserve Fund is proposed to be raised to Rs. 1,950 crores as compared to Rs. 1,715 crores in 1989-90. This higher allocation is necessary keeping in view the faster pace of renewals needed in the Eighth and the Ninth Plans.

It is considered desirable to augment the Pension Fund in view of the increasing outgo from the Fund, following liberalised pensionary benefits and higher number of pensioners in future. The contribution to the Fund is, therefore, proposed to be raised to Rs. 900 crores which is an increase of Rs. 172 crores over the Revised Estimates of the current year.

The Total Working Expenses will thus amount to Rs. 11,091 crores leaving the Net Traffic Receipts at Rs. 77 crores. After adding a sum of Rs 149 crores on account of Net Miscellaneous Receipts, the Net Revenue would amount to Rs. 226 crores. The Dividend payable to General Revenues in the next financial year has been estimated at Rs. 932 crores, with the result that at the current level of fares and freight rates, there will be a short fall of Rs. 706 crores.

It is proposed to increase the freight rates by 10%. However, in order to provide incentive to rail users to offer more traffic during the slack months of April to September, it is proposed that during this period from 1-4-1990 to 30-9-1990, the increase in freight rates be only 7%, and thereafter, it will be 10%. Further, keeping in view the interests of the common man, it has been decided to exempt certain essential commodities from the proposed increase. These are foodgrains, pulses, salt for human consumption, edible oils, fruits and vegetables, sugar, g and jaggery.

It is also proposed to increase the rates for parcels a luggage by 10%.

As the Honourable Members are aware, no increa was made in passenger fares during the last budg Railways are incurring heavy losses in the carriage passenger traffic. In order that this traffic also makes contribution to meet the additional revenue needs of t railways, revision of passenger fares has become unav dable.

It is proposed to increase the fares for upper class namely, Air-Conditioned First Class, Air-Condition Sleeper Class, First Class, and Air-Conditioned Ch Car by 17%.

The fare of Second Class Mail/Express is proposed be increased by Re. 1.00 at the lowest slab, progressive rising to a maximum of Rs. 20.00 for distances beyo 1400 km. The fare of Second Class Ordinary is propo to be increased by 50 paise at the lowest slab, progressive rising to a maximum of Rs. 4.00 for distances beyo 300 km. In keeping with the increase in the minimum fa of Second Class Ordinary from Rs. 1.50 to Rs. 2.00, t price of platform ticket is also proposed to be raised fro Rs. 1.50 to Rs. 2.00.

For Second Class Monthly Tickets, increases in fa varying from Rs. 4.00 to Rs. 12.00 per month accordi to the distance, are proposed. The increase in the case First Class Monthly Season Tickets is to range from R 16.00 to Rs. 48.00.

It is also proposed to raise the sleeper surcharge Second Class from Rs. 10.00 to Rs. 15.00 for distanc upto 500 km, from Rs. 15.00 to Rs. 20.00 for distanc from 501 to 1000 km, and from Rs. 15.00 to Rs. 25.(for distances beyond 1000 km.

The changes in freight rates and parcel and lugga rates will come into force from 1-4-1990, and changes passenger fares from 1-5-1990.

The above-mentioned proposals are expected to yie an additional revenue of Rs. 892 crores. Taking this in account, and after paying the proposed dividend of R 932 crores to the General Exchequer, the financial ye 1990-91 is expected to close with a surplus of Rs 18 crores. The projected surplus is just sufficient to execu works chargeable to the Development Fund, such a passenger amenities, staff amenities, and certain opera ting improvements.

Offici

Economic Survey

THE PERFORMANCE OF THE economy during 1989-90 shows signs of a slow-down in output growth. There has been some deceleration in the industrial growth rate and agricultural production has not increased much beyond the peak level reached in the previous year.

In 1988-89 the economy recovered very quickly from the setback of the drought of 1987-88. Gross Domestic Product (GDP) in real terms recorded a growth rate of 10.4 per cent aided by a growth of agricultural production by 20.8 per cent and industrial production by 8.8 per cent. The overall inflation rate was contained at 5.7 per cent in terms of Wholesale Price Index (WPI) compared with 10.7 per cent during 1987-88 and 8.5 per cent in terms of Consumer Price Index (CPI) compared with 10.9 per cent during 1987-88.

During the current year although monsoon rains have been normal, it is unlikely that agricultural production would show a substantial increase over the bumper crop achieved last year The growth of agricultural production is expected to be 1 per cent or so. Provisional data on the index of industrial production for April–November, 1989 shows an industrial growth of 5.2 per cent compared with 9.4 per cent during the corresponding period of the last year Even after allowing for some improvement in industrial production during the remaining period of the current financial year, it is unlikely that industrial growth rate during the year will exceed 6 per cent. On balance, on the basis of these tentative figures, it is estimated that GDP growth during 1989-90 will be around 4—4.5 per cent, which is below the average growth rate of around 5.9 per cent, achieved during first four years of the Seventh Five Year Plan. Despite this down-turn during the current year, on average, the Seventh Plan targets of growth are likely to be achieved.

The primary objective of growth must be the alleviation of poverty and for this the impact of growth on

Table 1

Selected Economic Indicators

(Percentage Change over Previous Year)

Economic Indicators	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89(P)	1989-90(P)
Gross National Product	7.5	5.6	-4.9	7.2	5.9	2.6	8.0	3.8	5.0	3.9	3.8	10.6	4-4.5*
Agricultural Production	14.3	3.8	-15.2	15.6	5.6	-3.8	13.7	-1.2	2.4	-3.7	-0.8	20.8	1.0*
Foodgrains Production	13.7	4.3	-16.8	18.1	2.9	-2.8	17.6	-4.5	3.4	-4.7	-2.1	21.3	1.8*
Industrial Production	4.2	7.6	-1.7	4.0	9.3	3.2	6.7	8.6	8.7	9.1	7.3	8.8	5.2
Electricity generated	3.4	12.2	2.1	5.9	10.2	5.7	7.6	12.0	8.5	10.3	7.5	9.5	12.0
Wholesale Price Index	0.4	4.5	21.4	16.7	2.4	7.2	7.2	6.0	4.8	5.1	10.7	5.7	7.0
Monetary Resources (M_3)	18.4	21.9	17.7	18.1	12.5	16.1	18.1	18.9	15.9	18.6	15.9	17.7	14.9
Imports at current prices	18.6	13.1	34.2	37.3	8.4	5.0	10.8	8.2	14.7	2.2	11.5	25.9	20.7
Exports at current prices	5.2	5.9	12.1	4.6	16.3	12.8	11.0	20.2	-7.2	14.3	26.4	28.9	38.3
Foreign Exchange Reserves (Rs. Crores)	4862	5821	5934	5544	4024	4782	5972	7243	7820	8151	7687	7040	5331

(P) Provisional * Anticipated

employment is crucial. Available evidence suggests that the acceleration of growth in the eighties has not been matched by a corresponding acceleration in employment at least in the organised sector. The policies that determine the direction of investment and public spending and the choice of techniques will have to pay greater regard to this concern.

The annual rate of inflation in the Wholesale Price Index (WPI) was 7.7 per cent as on February 17, 1990 compared with 5.3 per cent at the corresponding time last year. A measure of price stability is essential for sustaining the momentum of growth and ensuring equitable distribution of the benefits. Inflation especially hurts the poor, since their incomes are not indexed to prices. It also reduces the willingness to save in financial assets, encourages speculation and the generation of black money and distorts investment priorities. The containment of inflation in the current year and the past few years has been largely on supply management with food stocks and imports being used to check the upward pressure on prices of essential commodities. In the past three years stocks of foodgrains have been run down from 22.8 million tonnes in January 1987 to 12.6 million tonnes in January 1990, and imports of cereals, edible oils and sugar have amounted to 2.8 million tonnes, 3.4 million tonnes and 1 million tonnes respectively. The margins available for such supply management are now much lower than they were three years ago. In this situation a tighter control on budgetary deficits and liquidity growth and more rapid increase in output, particularly of wage goods, becomes even more essential.

Demand management and deficit control are closely linked to the savings rate. The eighties have been characterised by a stagnation in the overall savings rate and a sharp deterioration in public savings. The available evidence suggests that the picture in the current year is more or less the same. Significant improvement in the performance of overall savings, and public savings in particular is necessary for macro-economic stability and for financing the investments required for growth and employment generation.

The imbalances between aggregate demand and supply spill over onto the balance of payments and have to be met by running down reserves or increasing debt. Given the limited availability of concessional assistance, growing recourse to foreign borrowing necessarily means an increase in debt service which in turn constrains the room for manoeuvre on the import front. The solution lies in rapid exports growth and, as regards this, trends in the past three years provide good grounds for hope. The visible trade deficit has narrowed significantly in 1989-90 with exports (in rupee terms) rising by 38.3 per cent in the first nine months of the current year as against a growth of 20.7 per cent in imports.

GNP, savings & investment

The Quick Estimates of national income aggregates prepared by the Central Statistical Organisation indicate that Gross National Product at factor cost (constant prices) recorded an impressive growth rate of 10.6 per cent during 1988-89. Agriculture and allied sectors recorded a growth rate of 16.9 per cent in 1988-89 compared with 0.7 per cent in 1987-88 ; industry and construction achieved a growth rate of 7.7 per cent in 1988-89 compared with 5.6 per cent during 1987-88 ; banking and real estate recorded a growth of 7.3 per cent compared with 5.8 per cent a year ago and transport, storage and communications recorded a growth rate of 7.6 per cent in 1988-89 compared with 5.1 per cent in 1987-88.

However, there has been a disquieting trend in the rate of domestic savings which showed little improvement during the Seventh Plan. The ratio of gross domestic saving as percentage to GDP at current market prices improved marginally from 20.4 per cent in 1985-86 to 21 per cent in 1988-89, and the ratio of gross capital formation increased from 22.8 per cent to 23.9 per cent during the same period. While the saving from the public sector has declined continuously from 3.2 per cent of GDP in 1985-86 to 1.6 per cent in 1988-89 and that of the private corporate sector from 2.1 per cent of GDP to 1.8 per cent during the same period, the savings of the household sector recorded an appreciable increase from 15.2 per cent of GDP in 1985-86 to 17.5 per cent in 1988-89. Given this trend of savings and the likely slowdown of the economic growth during the current year, it is unlikely that there would be any marked improvement in the overall savings rate in 1989-90.

Agricultural production

The first three years of the Seventh Plan were marked by a succession of unfavourable monsoons culminating in the severe drought during 1987-88. The Index of agricultural production declined by 3.7 per cent in 1986-87 and 1 per cent in 1987-88. There was a record growth of agricultural production by 20.8 per cent during 1988-89. The growth was also wide-spread over various crops and regions. While foodgrains production recorded an increase of over 21 per cent, production of pulses increased by 25 per cent, oilseeds by more than 41 per cent and cotton by 36 per cent.

During the current year monsoon has been normal and 29 out of 36 meteorological subdivisions have received excess or normal rainfall. It is expected that agricultural production may rise by about one per cent over the bumper crop achieved last year. Foodgrains production in 1989-90 is likely to cross the record production of 170 million tonnes achieved in 1988-89.

Rice production in 1989-90 has been targeted at 72.5 million tonnes. With monsoon on time and its coverage being normal, the overall kharif crop production has been reported to be satisfactory. The target for wheat at 54 million tonnes and that of pulses at 14.75 million tonnes are likely to be achieved. Various development programmes of the Government to raise production of rice, wheat and pulses *viz.* Special Rice Production Programme (SRPP) for the eastern region, Special Foodgrains Production Programme (SFPP) for major foodgrains producing States and the Centrally Sponsored National Pulses Development Project continue to be in operation in 1989-90. With the help of support measures undertaken by the Government and the efforts made by

the Technology Mission on Oilseeds established in May 1986, oilseeds production has gone up significantly in recent years. As a result imports of edible oils during the oil year 1988-89 (November—October) at about 3.7 lakh tonnes were quite modest compared to 18.2 lakh tonnes in 1987-88. A production target of 165 lakh tonnes of oilseeds has been fixed for 1989-90. Production of cotton is anticipated to reach a record level of 95 lakh bales in 1989-90.

Despite larger acreage and production of sugarcane, sugar production declined to 87.52 lakh tonnes in the sugar year 1988-89 (October — September) compared with 91.10 lakh tonnes recorded in 1987-88. Considering the estimated size of the sugarcane crop, sugar production during the current year may register a significant increase. Production of tea in 1988-89 increased by 5 per cent but is likely to decline during the current year.

The increase in agricultural production has been stimulated largely by the increase in the use of key inputs like irrigation and fertilisers. Taking the period 1980-81 to 1988-89 the average growth in agricultural production (in terms of physical output) was 5.4 per cent, that in irrigation (measured in terms of gross irrigated area) was 3.0 per cent and in fertiliser use (measured in terms of NPK) was 8.9 per cent. Given the dependence on weather a year-to-year correlation between input use and agricultural production cannot be expected. However, in 1989-90 a more or less normal monsoon year, agricultural production is expected to grow by a little over 1 per cent as against the 12.6 per cent increase in fertiliser use.

The Government also continued its policy of providing adequate and timely credit at subsidised rates to the farmers through institutional agencies like co-operatives, commercial banks and Regional Rural Banks to support agricultural and allied activities. The total quantum of agricultural loan increased substantially from Rs. 6,794 crores in 1985-86 to Rs. 11,752 crores in 1988-89 and the target for 1989-90 has been fixed at Rs. 13,294 crores.

In 1989-90, for more effective implementation of wage employment programmes, a new employment generation programme known as the Jawahar Rojgar Yojna has been introduced and merged with the existing National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme (RLEGP). A sum of Rs. 2623 crores (including Rs. 523 crores as States' share and the subsidised value of foodgrains) has been provided for the scheme during 1989-90 in order to generate 837 million mandays of employment.

Industry & Infrastructure

After a slight deceleration during 1987-88, industrial production recovered quickly during 1988-89 and grew by 8.8 per cent compared with 7.3 per cent during 1987-88. The improvement in the growth rate was shared by all sub-sectors — manufacturing sub-sector recorded a growth rate of 8.9 per cent, mining and quarrying sub-sector 7.9 per cent and electricity sub-sector 9.6 per cent. The growth was also supported by the recovery in agriculture, improved performance of infrastructure sectors like coal, steel, cement, fertilisers, railways and power generation and an increase in overall demand.

There has been a slow down of industrial growth during the current year, and data available upto November 1989 indicate a growth rate of only 5.2 per cent compared with 9.4 per cent during the corresponding period of last year. The current down-turn in industrial growth is essentially attributable to the poor performance of the manufacturing sub-sector which accounts for more than three-fourths of the total weight in the Index and recorded a growth rate of only 3.6 per cent during April-November 1989 compared with 10.2 per cent achieved during the corresponding period of last year. The deceleration has been marked in a few key industries like sugar, steel, cement, fertilisers, cotton cloth (mill sector), commercial vehicles and consumer electronics.

An analysis of industrial growth by use-based classification indicates that during first eight months of the current year there has been a significant deceleration in the growth rates of basic industries (from 10.8 per cent in April—November 1988 to 4.7 per cent in April—November 1989), consumer durables (from 19.2 per cent to 0.8 per cent) and intermediate goods (from 13.2 per cent to 2.2 per cent), while capital goods have maintained more or less the same growth rate around 9 per cent, and consumer non-durables have improved their performance from 2.8 per cent to 5.9 per cent.

Mining and quarrying and electricity have performed significantly better during this year as compared to that during last year. While mining and quarrying registered a growth rate of 8.4 per cent during April—November 1989 compared with 6.8 per cent during April—November 1988, the electricity sub-sector recorded a growth of 12.1 per cent during April—November 1989 compared with 7.5 per cent during corresponding period of the last year.

The performance of key infrastructure sectors during April—December of the current financial year presents a mixed picture. While electricity generation, crude petroleum and petroleum products, coal and lignite production, coastal shipping and telecommunications sectors recorded substantial growth; railway revenue earning traffic indicates only a modest improvement and there has been deceleration in the production of saleable steel, cement and phosphatic fertilisers. Within the power sector, there has been better performance by both hydel and thermal generation and average PLF has also improved during the year until now. In the petroleum sector, during April—December 1989 crude petroleum production increased by 6.9 per cent and petroleum products by 9.1 per cent. The import of crude oil in the first nine months of the current year increased by 8.5 per cent and that of petroleum products increased by 4.6 per cent over the imports during the corresponding period of last year.

The slow down in industrial growth in 1989-90 is due to a variety of reasons. In some industries like steel, sugar or phosphatic fertilisers, the explanation lies in specific supply side factors. In some industries, rapid expansion in recent years has proceeded beyond the growth in

demand leading to unutilised capacity. In some others the rate of growth of demand may have decelerated as backlogs of unfulfilled demand came down.

Nitrogenous fertiliser production recorded marginal increase by only 0.4 per cent during April—December 1989 over the same period of 1988, while phosphatic fertiliser production recorded a substantial decline by 31.7 per cent during the period due to shortage of imported phosphoric acid. Cement production during April—December 1989 was marginally higher by 0.2 per cent over the corresponding period of last year although cement prices remained firm throughout the year after complete decontrol of prices and distribution of cement from March 1989.

Prices & price management

The price situation has remained under pressure from the beginning of the year despite a satisfactory monsoon and a bumper crop achieved for the second year in succession. In terms of new series of WPI, the rate of inflation during 1988-89 was contained at 5.7 per cent compared with 10.7 per cent during the drought year 1987-88. During the current year the WPI registered an increase of 7 per cent upto February 17, 1990 compared with 5 per cent in the corresponding period of the last year. The annual rate of inflation in terms of WPI works out to 7.7 per cent on February 17, 1990 compared with 5.3 per cent at the corresponding time of last year. The increase in prices was particularly marked in the June—September period and the seasonal decline in prices which normally starts in September was delayed this year.

Data on Consumer Price Index (CPI) for Industrial Workers is available upto January 1990 and the increase in CPI works out to 5.5 per cent during current financial year upto January, which is significantly lower than 7.8 per cent recorded upto January last year.

The increase in prices during current year has been largely contributed by agro-based items like pulses, tea, oilseeds, sugar, gur and khandsari, and groundnut oil where production has either remained stagnant or has declined. Among manufactured items textiles, beverages, paper and paper products, leather and leather products, tobacco products and basic metals have also shown considerable increase. The increase in prices of metals, machinery and paper products is mainly due to higher import prices and those of textiles and leather products, to some extent, reflect increasing demand.

In order to contain the inflationary pressure, the RBI tightened selective credit controls and took certain measures to mop up excess liquidity. On the supply side Government maintained supplies of foodgrains and other essential commodities through the Public Distribution System. Additional imports were undertaken, to the extent feasible as in the case of edible oils, pulses, rice and sugar in order to maintain adequate supplies. For some essential commodities, appropriate price bands were determined and suitable market intervention operations were undertaken so that ruling prices remain within price bands.

Stocks of foodgrains built up in earlier years were used during 1987-88 to meet the pressures arising from the severe drought. However, satisfactory level of procurement during 1988-89 marketing season helped to augment the level of stocks. As of end January 1990, stocks of foodgrains with public agencies stood at 12.60 million tonnes, which was higher by 36.2 per cent over their level in the same period of last year.

During the current year, administered prices of industrial items except for iron and steel and non-ferrous metals were kept unchanged. However, there have been substantial upward revisions in support/procurement prices of major agricultural commodities mainly to provide remunerative price environment and to augment production and procurement of various agricultural commodities. The Government has recently set up a Committee to examine, inter alia, the existing system and criteria for fixing agricultural prices and to suggest modifications for fixation of remunerative agricultural prices.

Fiscal and monetary policy

The Union Budget for 1989-90 had sought to correct the growing imbalances between revenues and expenditures. The actual outcome is however, likely to be much worse than the budget estimates in the Budget for 1989-90. Aggregate resources of the Central Government including internal and extra-budgetary resources of Central Public Enterprises were estimated to increase by 17.2 per cent over that in 1988-89. Aggregate disbursements, on the other hand, were estimated to be higher by 15.6 per cent than that in 1988-89. The Central Government Plan Outlay for 1989-90 was raised by 20 per cent as compared to the 1988-89 level. The budget deficit was programmed at Rs. 7,337 crores amounting to 1.7 per cent of GDP. However, the increase in Net RBI Credit to Central Government has been running well above this level for the greater part of the year, which is a matter of great concern.

The *Budget Deficit* as conventionally reported is only a partial measure of the fiscal imbalance that has built up over the eighties. As far as money supply growth is concerned, what matters is the *Monetised Deficit* i.e. the increase in net RBI credit to the central government. From the broader point of view of macro-economic balance it is useful to look at the *Overall Deficit* between the revenues of the government and its total expenditure. This deficit measures the government borrowing requirement which has to be met from domestic and external sources. As far as the Central Government is concerned the behaviour of these indicators over the past few years has been as follows :— (Table · next page)

These large deficits have been met by borrowing, and the debt of the Central Government has necessarily increased and interest payments now account for a substantial part of the budget. Thus the net interest burden (i.e. interest paid less interest recovered) in the Central Budget has gone up from 3.6 per cent of the total expenditure in 1980-81 to 10.1 per cent in 1989-90 (BE)

	1980-81	1985-86	1986-87	1987-88	1988-89 (RE)
1	2	3	4	5	6
As percentage of GDP at market prices					
Budget Deficit	1 9	1 9	2 8	1 7	2 0
Monetised Deficit	2.6	2 4	2 4	2 0	1 7
Overall Deficit	6 1	8 9	8.9	8.1	8 2

The Economic and Functional Classification of the Budget prepared every year reclassifies expenditures into those which directly generate a demand for goods and services by the Government and those that are transfers to other spending organisations and sectors. This classification of the Central Government Budget shows that there has been steady decline in the proportion of expenditure on capital formation from over 40 per cent in mid eighties to 34.7 per cent in 1989-90. On the other hand, transfer payments from the Central Government to the States, Union Territories and other sectors of the economy have increased sharply from 31 per cent in 1980-81 to 40 per cent in 1989-90. Among transfer payments, the highest increase has been on account of interest payments which increased from 10 per cent in 1980-81 to 17.7 per cent in 1989-90. The share of consumption expenditure has fluctuated within the range of 21 to 23 per cent. Defence expenditure accounted for about 70 per cent of Government consumption expenditure.

The Long Term Fiscal Policy (LTFP) announced by the Government in December 1985 had indicated some broad targets. When the actual out turn is compared with these targets the broad picture that emerges is as follows :

(a) Performance of Tax Revenues has been more or less on target, although indirect taxes have performed better and direct taxes remained slightly lower than the targets.
(b) Non-Tax Revenues have also performed well.
(c) Non-Plan revenue expenditures exceeded plan targets by significant margins. In particular Defence, Interest Payments and Food and Fertilizer Subsidies were substantially above the targets.
(d) Both market borrowings and budget deficit exceeded the targets by wide margins.
(e) Contribution of public enterprises fell short of projections by significant amount.
(f) The size of Centre's Plan and assistance to States and Union Territories were also well above the Seventh Plan targets.

It would follow from the above observation that the growing imbalances in the fiscal system did not stem from any let-up in Government resource mobilisation rather it was due to the increase in Government expenditure which, in turn, was financed by larger borrowings and the budget deficit.

Fiscal imbalances have implications for liquidity growth. During the current financial year, upto 26th January, the growth in money supply (M_3) has been 14.9 per cent compared with a growth of 14.5 per cent in the corresponding period of the last year. Time Deposits with banks have registered a lower growth of 14.6 per cent in this period as against 17.6 per cent last year. However, currency with the public has grown at a faster rate of 15.6 per cent compared with 9.0 per cent during the corresponding period of 1988-89. Demand Deposits have also grown at a higher rate of 16.3 per cent compared with 9.7 per cent a year ago. There has been a large expansion in the Net RBI Credit to Central Government by 26.2 per cent compared with 18.0 per cent in the corresponding period of 1988-89. Bank credit to commercial sector has recorded a modest growth of 10.9 per cent compared with 11.6 per cent during the corresponding period of last year. Non-food credit has recorded a lower growth of 12.7 per cent compared with 13.9 per cent in the relevant period of last year.

During the year the RBI made some changes in policy, focussing essentially on re-finance terms for bank credit, to restrain the growth in money supply. As of end September, 1989 aggregate monetary resources (M_3) were growing at an annual rate of 18.2 per cent. After the changes made by RBI in October 1989, the rate has moderated and as of end January the rate of growth of monetary resources was 17.7 per cent over the corresponding period of the last year.

Some changes were also made during the year in the interest rates on agricultural credit, export finance and term deposits of 46—90 days, the major change was in the short-term money market where the ceiling on interest rate on the inter-bank participation and call money rates was removed and a decision was announced to permit issue of Certificates of Deposit and Commercial Paper at market determined rates.

As has been the case during the first four years of the Seventh Plan, India's balance of payments situation has remained under considerable pressure during 1989-90 despite a buoyant trend in exports and a slow-down in the growth of imports. Exports in rupee terms increased by 14.3 per cent in 1986-87, 26.4 per cent in 1987-88 and 28.9 per cent in 1988-89. On the other hand, imports recorded an increase of 2.2 per cent in 1986-87, 11.5 per cent in 1987-88 and 25.9 per cent in 1988-89. Provisional data available so far indicate that during the first three quarters of the current year exports recorded an increase of 38.3 per cent over the corresponding period of last year. Imports have registered a relatively slow growth at 20.7 per cent in terms of rupee. Consequently, the trade deficit at Rs. 5518 crores during April—December, 1989 declined by 16.4 per cent over the same period of last year. In dollar terms the trade deficit for the first nine

months is lower by $1.3 billion compared to last year. Net invisibles, on the other hand, are unlikely to show any improvement because of uncertain trends in the net private transfers, relatively slow growth of tourist traffic and a steady increase in interest payments on past borrowings.

The crux of the balance of payments problem during the Seventh Plan lies in continuing high trade deficits and a declining role of invisibles in financing the deficits. Net invisibles as a percentage to GDP have declined from an average of 2.1 per cent during the Sixth Plan to 1.2 per cent during the first three years of the Seventh Plan, while trade deficit as a percentage to GDP declined marginally from an average of 3.4 per cent to 3.2 per cent during the same period. Consequently, the current account deficit as a percentage to GDP has increased from an average of 1.3 per cent in the Sixth Plan to 2.1 per cent during first three years of the Seventh Plan.

Deterioration in our balance of payments position during the Seventh Plan period is due to several unfavourable factors such as deceleration in the growth of domestic oil production, bunching of repayment obligations to the IMF and other sources, limited availability of concessional assistance and a rise in debt service payments on external debt. The continuing strain on our balance of payments is reflected in steep depletion of our foreign exchange reserves which stood at Rs. 5531 crores at the end of January 1990. Despite the absolute increase in aid commitments, the share of external assistance in India's total external debt has declined over the years. Furthermore, the grant element in external assistance has also declined making the availability of these resources more costly over time.

The Government has been attaching high priority to an improvement of the balance of payments situation. This is sought to be achieved through acceleration of exports growth, efficient import substitution, prudent allocation of foreign exchange to various sectors, liberalisations of trade and industrial regime and improvements in infrastructural facilities for exports. The reforms in the foreign trade sector have been aimed at providing industries with greater liberty as regards supply of raw materials and machinery, replacement of non-tariff barriers by a tariff structure and provision of various fiscal and monetary concessions for the exports sector. The trends in the value of exports and imports in recent months are encouraging. However, the export performance in terms of both quality and volume needs to be improved even further and imports of bulk items need to be reduced to offset the effect of less favourable terms of trade. □

Human resource accounting system

O.P. Jagati

A well developed HRA System is a useful tool for business cost control. In the author's view, the technique gives a fair account of financial position and managerial decision regarding manpower. The technique is nascent in India and calls for more research work to prove its worth.

EVEN IF, THREE Ms — MONEY, Machine and Man run a business, it is man who is ultimately responsible for the growth, profitability and viability of any business. Although the human resource is a key factor in the successful performance of any organisation, an effort towards a quantitative representation of the human resource is still to take a concrete shape. Human resource accounting is a revolutionary effort in this direction. Human resource accounting (HRA) is defined as, "the process of identifying, measuring and communicating information about human resources (HRs) to facilitate effective management within an organisation". HRA aims at a rational and precise method of quantification in monetary terms the cost to the organisation of its human resource (HR) and the value of benefits to be derived by the organisation through their employment. This is particularly relevant to professional firms and service industries where people are most important assets than hardware.

[illegible]

Till the late sixties the conventional treatment of the cost incurred as HR — cost of acquiring, training, maintaining, developing and terminating HR — was to write them off as only revenue expenditure. No attempt was made to evaluate the benefit aspect of this cost to the organisation. The traditional concept of treating the HR expenditure as "expense" rather than "asset" was due to conventional boundaries set for the definition of "an asset". The basic distinction between an "asset" and "expense" is the notion of future service potentiality. A cost which has no future service potentiality is treated as a revenue expense. But with regard to the human cost, it is more out of convenience rather than logic, which treats such cost as revenue instead of capital We can elucidate two examples to justify the claim of treating HR cost as an asset.

X Company Ltd. — a manufacturing company having a capital outlay of Rs 10/- crores is earning an annual average net profit of Rs. 90/- lakhs. Y Company Ltd — an engineering and financial consulting company having a capital outlay of Rs 60/- lakhs is also earning an annual average net profit of Rs 90/- lakhs Apparently, X Company is earning only 9% return on its investment, while Y Company earning as high as 150% return on its investment. Even if, Y Company has a very meagre amount of investment in form of tangible assets, it is employing an invisible and inherent asset in the form of its HRs possessing advanced technological and financial knowedge which is responsible for its mammoth return on investment. Because this resource is invisible it cannot be construed that HRs are not possessed by Y Company.

In another example A company Ltd. having a capital investment of Rs. 25/- crores was earning a return of 15% on its investment consistently over a number of years. However, during the last five years its rate of return has gone up to 20% without any further investment. This reported five per cent increase in return exclusively due to more effective manpower deployment and motivation, thereby avoiding an additional investment of around Rs. 10/- crores. This amount is nothing but an increase in the value of HR of the Company.

Useful indicator

A well developed Human Resource Accounting system may be used as an effective management tool. Once the human assets are quantified scientifically, the ratio of investments in human assets to total assets (the human asset-investment ratio) can be used as an indicator of future profit by establishing a meaningful correlation between the profitability of the organisation and cost of HR. In a research work undertaken by University of Michigan, U.S.A., it has been noticed that organisations with high human asset-investment ratio, generate high profits while firms with a low ratio reflects lower profits.

HRA can determine the standard cost of recruiting, hiring, training and developing individuals of an organisation thus becoming a useful tool for cost control process. Further, it can help in capital budgeting decisions involving HRs when at present the decisions on

human assets are typically considered qualitative and thus, ignored.

After telling the importance of valuing human resources, the next question that arises is ; how it can be measured ?

Since the development of HRA conception and research work undertaken therefor during the last two decades, some HRA methods in the field of HRA are described below in nutshell.

a) Capitalisation of historical costs method :

This method developed by R. Likent capitalises all costs of recruitment, hiring, training and other initial costs involved in developing a human resource i.e. an employee. The amount so capitalised is written off over the period an employee remains with the organisation. If he leaves before the expected service period, the amount remaining as an asset is written off in its entirety in the year of leaving. An example would better explain this method Mr. Mohanty has been recruited in Konark Ltd. This company has spent Rs. 1,000/- towards advertisement and other initial expenses for such recruitment besides Rs. 29,000/- towards various intensive training programmes. Mr. Mohanty is expected to serve for 15 years. So in this case, the cost of recruitment and training can be written off at the rate of Rs. 2,000 per annum. If Mr. Mohanty resigns after serving for 5 years, then the remaining amount of Rs. 20,000/- has to be written off in entirety in the sixth year.

This approach is very simple to understand and implement. But it only provides a measurement of cost and not the value of human assets. The value so measured can hardly be regarded as the real value of human resources indicating their potential contribution.

b) Replacement cost method :

This method measures the cost to replace an organisation's existing human resource. It indicates what it would cost the concern to recruit, hire, train and develop human resource to match the present level of efficiency. Even if, this method has the advantage of adjusting the human value to the current market price, the task to study to replacement cost of individual replacement cost may not be practically feasible for a concern. Further, since the method is based on the concept of matching the present level of proficiency–which is subjective in nature, it is doubtful whether the collected information would be precise enough.

c) Opportunity cost method :

Under this method value of HR is determined on the basis of the value of an individual employee in an alternative use. If an employee can be hired easily externally, there is no opportunity cost for him. This implies that human assets have value only when there is an alternative use for them. On the otherhand only scarce personnel have value. A major deficiency of this method that it assigns no value to employees who can be hired easily. Are such employees worthless? This is not correct.

d) Economic value method :

In this method developed by Brummet, Flamholtz and Pyle, human resources are valued on the basis of the contribution they are likely to make to the organisation during the period of their employment. As it is practically impossible to estimate the contribution of an employee in terms of sales made or fees earned, the remuneration to be paid to an employee during his employment is estimated and discounted appropriately to arrive at the current estimated value. Even if, this is one of the acceptable methods, it is also subject to certain severe criticism Firstly, a firm does not pay an amount equal to the benefit derived from the service of an employee. Secondly, benefits are usually earned for the firm by the employee working collectively and not in individual capacities. Further, how can the capitalised value of expenses to be incurred in future be an asset. Lastly, the value of a HR in the benefit expected to accrue from it and not the expenses likely to be incurred from it.

e) Present value method :

This method developed by Lew and Schwartz is very much alike to the previous method so far the valuation of HRs is concerned.

This model tries to measure the expected value of HRs by attributing employee's value to the Organisation as an equivalent to the present value of his remaining earnings. Under this model the concept of human resource is defined as a source of income over a period of time and its worth is the present value of future incomes discounted at a certain rate of cost of capital. Lew & Schwartz have developed the following formula for ascertaining the value of an individual:

$$V_r = I(t)/(1 + R)^{t-r}$$

Where, V_r = the value of an individual of r years old.

I $I(t)$ = the sum of individual's income upto retirement.

t = retirement age.

R = a discount rate for the cost of capital

Under this model the whole labour force is divided into certain homogenous groups such as unskilled, skilled, semi-skilled, technical, clerical, managerial groups etc. and in accordance with difference classes and age groups. Average earnings stream for different classes and age groups are prepared for each group separately and the present value for the human capital is calculated The aggregate present value of different groups represent the present value of HRs of the firm as a whole.

However, this model suffers from the following deficiencies :

— A person's value to an organisation is determined only on the basis of his salary. This is questionable as salaries are never paid in relation to the value of an employee.

— The Model does not take into account the possibility and probability of an individual leaving the

organisation for reasons other than death or retirement.

The assumption of the model that people will not make changes of their roles during their career within the Organisation, also seems to be unrealistic In a organisation employees are quite often transferred to other departments within the organisation.

This model also involves a 'cost based' approach to the value of HR.

But inspite of these shortcomings, this model is regarded as a better approach since it incorporates economic value concept of HRs and has developed a mathematical formula for valuation of HRs.

HRA in India:

The concept of HRA is yet to gain momentum in India. Anyway, some giant organisations like M M.T.C, ONGC, BHEL, Neyveli Lignite Corporation, ACC etc. are adopting this concept. But the concept is adopted outside the purview of published accounts as additional information. In this article, the HRA of MMTC for last two years has been illustrated. The assumptions behind the HRA of MMTC are as follows:

- Only internal human organisation i.e. employee is considered. External organisation like customers is not considered.
- HRs value is worked out on the Lew & Schwartz Model.
- A 12 per cent discount rate is adopted towards cost of capital.
- Employees are classified according to age and pay scales under six categories — Executives, Supervisors, Supporting technical staff, skilled artisans, unskilled and semi-skilled workers and clerical staff.

HUMAN RESOURCE ACCOUNTING BY MMTC (BASED ON ANNUAL REPORT OF MMTC FOR 1988-89)

CATEGORY	1987 – 88			
	1987-88		1988-89	
	No	Value (Rs. Million)	No.	Value (Rs. Million)
1. MANAGERS	968	429 3	939	505.94
2. STAFF·				
(a) Supervisory	1256	528.6	1328	665.47
(b) Non-Supervisory	1638	623 5	1560	570.22
TOTAL STAFF	2894	1152.1	2888	1235 69
GRAND TOTAL	3862	1518.4	3830	1741.63
	(SAY)	1581	(SAY)	1742

	1987-88	1988-89
Value of future earning per employee:	0.409	0.4550
Increase over last year	11.75%	11.25%

ITS APPLICATION	1987-88	1988-89
	Value Rs. Million	
Value of HRS:	1581	1742
Fixed Assets (Net) at current cost:	112	178
Investments·	561	1108
Net current Assets at current cost:	1886	4732
	4140	7760
Turnover:	28,941	38,800
Value Added:	1,540	2.071
RATIO OF:		
Turnover/Hrs:	18.30	22.27
Value Added/Hrs:	0.97	1.19
HRs/Total Resources:	0.38	0.22
Value Added per Employee of Human Capital	Rs. 0.400 million	Rs. 0.541 million

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Economics of rehabilitating alkali soils of the Indo-Gangetic plains

Dr. P.K. Joshi and N.T. Singh

In this article the authors highlight the positive effects of reclamation of the salt-affected soils of the Indo-gangetic plains on agricultural production. Appropriate management of salt-affected soils using the available technology can increase agricultural production, alleviate poverty and thus ensure long-term economic stability to the area, the authors affirm.

ALL THE POTENTIAL AGRICULTURAL land in the country has already been brought under cultivation. Rather there is a case for taking of some marginally suitable land out of arable agriculture. Simultaneously, the existing crop base in the country is being steadily diminished because of alkalinity-salinity and waterlogging. Ironically, this is happening in our most productive soils under different canal commands (Table 1). Thus, not only our precious resource base is being gradually eroded but the huge investment in creating irrigation potential is in jeopardy.

Already an area of more than 7 million hectare in different parts of the country is losing agricultural production due to excess salts in the soil (Abrol and Bhumbla, 1971). There are large areas which witness the presence of salts in the root zone limiting agricultural production. Any further expansion of such areas is bound to retard the rate of agricultural development and its sustainability. Appropriate management of salt-affected soils using the available technology is necessary to increase agricultural production, alleviate poverty, cope with the pressure of population growth and to ensure long-term potential and economic stability of irrigated agriculture.

The salt affected soils are widely distributed in different parts of the country. The salt affected soils of Indo-Gangetic plain are further divided into three broad categories : (i) alkali soils with good groundwater quality, (ii) alkali soils with brackish groundwater and (iii) saline soils with poor quality groundwater. Approximately 3.324 lakh ha. of alkali land have been restored to agricultural production in the Indo-Gangetic Plains of Haryana, Punjab and Uttar Pradesh, mostly in the sweet water belt.

The task of rehabilitating alkali soils for crop production in Haryana and Punjab has been quite impressive but regretfully very slow in Uttar Pradesh. To accelerate the pace of reclamation and rehabilitation of alkali soils in Uttar Pradesh meaningful planning and policies are warranted. This paper will highlight some such points, provide information on important components of technology for alkali soils reclamation, financial feasibility and socio-economic benefits of the process.

The results presented in the study pertain to two 'Operational Research Projects' of the Indian Council of Agricultural Research, located at the Central Soil Salinity Research Institute, Karnal (Mehta, 1987) and the Punjab Agricultural University, Ludhiana (Singh et al, 1983 and Bajwa et al, 1983). Results of earlier studies have also been reviewed and compiled to highlight the benefits of rehabilitating alkali soils for crop production.

Alkali soils are spread in the Indo-Gangetic plains of Haryana, Punjab and Uttar Pradesh and few districts of Bihar under Gandak Command. These soils occupy approximately 14 lakh ha, accounting for about 56 per cent of the total salt affected area in these states (Table 2) Roughly, an area of about 12 per cent to the net area sown is alkali in Punjab, 7 and 4 per cent, respectively in Haryana and Uttar Pradesh. Salt affected soils are generally confined to areas with average annual rainfall of 550 mm to 1000 mm.

Reclamation technology

Over the years technology for reclamation of alkali soils in the Indo-Gangetic Plains has been fairly well standardized. It involves land grading and bunding, assured irrigation, soil test based application of amendments and fertilizers, suitable varieties of rice and wheat and judicious water management and agronomic practices.

Experimental results and on-farm studies show that proper use of above techniques of land reclamation has

produced crop yields comparable to normal soils. Economic studies on this technology also show that potential farm level benefits can be high provided judicious quantity of amendment and inputs are applied and recommended practices are followed. The technology has in fact helped farmers of the region to increase their income by using the hitherto unproductive land to good advantage. It is on this account that about 3.34 lakh ha. alkali land have been reclaimed by 1987-88.

[illegible]

The investment on reclamation of alkali soils in the first year is broadly divided into two components : (i) the initial investment on land-levelling, bunding of land, installation of tubewell, leaching of salts and application of amendment, and (ii) the cost of crop production In subsequent years, there is no need to invest on the first component.

The investment on reclamation is determined by soil type, pH of the soil, prevailing wages of labour, prices of inputs and amendment, subsidy policies of the government, etc. Therefore, reclamation costs may vary depending upon the prevailing state policy and location of the programme. The cost for various components presented in this paper are based on 1988-89 prices.

The item wise break-up of initial investment is given in Table 4. The cost on amendment is the major item and is determined by the soil pH and price of the amendment. Gypsum is the commonly available and effective amendment in Punjab, Haryana, while iron pyrites are being used in Uttar Pradesh and Bihar. Actual quantity of gypsum required is calculated on the basis of laboratory tests carried-out on the surface (0-15 cm) soil. On an average 12-15 t/ha. of gypsum is needed in highly degraded soils and including application would cost Rs. 5380 per ha. To encourage the reclamation programme, the government subsidises the cost of gypsum from 50-75 per cent. Thus, the payable cost of amendment and its application to the beneficiaries is about Rs. 1780 per ha. After application of gypsum, the salts are leached with good quality irrigation water, which costs about Rs. 260 per ha. Based on these estimates, the cost of land levelling, bunding, leaching and amendment is about Rs. 7660 per ha. without any subsidy and Rs. 4060 per ha. with 75 per cent subsidy on gypsum.

Often additional investment may be needed to a sinkage tubewell. Its cost (including boring and pumpset) is about Rs. 13,000. A small set can irrigate around 4 ha. land. Thus considerable amount of capital is required which may be difficult for small and marginal farmers with poor resources. Uttar Pradesh has a scheme for free boring and providing loan to purchase an engine.

Therefore, the total cost of reclamation in the first year with 75 per cent subsidy on gypsum and excluding the cost of crop production, varies from Rs. 5560 per ha. when maximum subsidy is available for installation of tubewell, to Rs. 7310 per ha. without any subsidy. In case there is no subsidy on gypsum and installation of tubewell, the cost is about Rs. 10910 per ha.

Reclaimed alkali soils are recommended to be put under rice-wheat, rice-wheat-dhaincha or rice-barseem crop rotations. Rice-wheat rotation is most common in the Indo-Gangetic region. The cost of cultivation depends upon several factors in different regions and is worked out to be about Rs. 5100 per ha. for rice and Rs 3500 per ha. for wheat.

Feasibility

The reclamation of alkali soils is financially feasible under farmers' resource endowments Earlier studies have shown that the benefit-cost ratio was 2.25 in the Operational Research Project in Kapurthala, Punjab (Kahlon and Singh, 1980). This shows that one rupee invested on reclamation of an alkali soil provided Rs 2.25 additional income. In a different set of situation in Punjab the benefit-cost ratio varied from 1 15 to 1.20 (Bajwa et al. 1983) The benefit-cost ratio in different situations under farmers' resource constraints in Haryana ranges from 1.34 to 1.42 (Joshi and Agnihotri, 1982) The pay back period was between 2 to 3 years in Haryana and Punjab. The internal rate of return touched a high value of 36 per cent in Punjab. The long-term results are yet to be observed in Uttar Pradesh. The benefit-cost ratio is expected to be 1 21 in Rai-Bareilly under a Government sponsored programme in Uttar Pradesh. (Government of Uttar Pradesh, 1989).

Benefits of reclamation

The following socio-economic and environmental benefits are expected from the reclamation and judicious management of salt affected soils.

The major benefit of one time investment on reclamation is continuous income generation. It has been estimated that the net annual income of an individual farmer from rice-wheat rotation, with recommended package of practices would be about Rs. 6000 per ha. from third year onwards in Karnal district of Haryana. At a very low level of technology adoption with poor resource base in Etah (Uttar Pradesh), the annual net income on reclaimed alkali soil was about Rs. 1100 per ha. during 1982-83. These values reveal that the technology has a high potential to raise farm income. It has been reported that during the first year of adoption of technology, the share of bottom 50 per cent farmers in total income was only 30 per cent, which rose to 36 per cent during the fifth year – a rise of 6 per cent in the share of bottom 50 per cent farming community (Joshi and Agnihotri, 1982). Thus reclamation programme can play an important role in achieving the objective of raising income and purchasing power of rural poor owning salt affected lands.

An important problem in development is to provide large number of productive jobs commensurate with rapid population growth and the existing number of rural poor. There are about 29 million agricultural workers, including farmers, in the Indo-Gangetic plains of Haryana, Punjab and Uttar Pradesh. Their number is rapidly increasing making it imperative to find avenues to absorb additional workforce. The land augmentation through reclamation of alkali soils provides employment opportunities to landless labourers, small and marginal farmers. The employment generation in the first year is at a low

level of 165 man-days per ha. under a high degree of mechanisation. It ranged between 207 to 237 man-days per ha. in a situation of low degree of mechanisation in Uttar Pradesh (Table 4). In subsequent years, the employment is continuously generated for crop production and handling of produce.

Land reclamation offers tremendous scope for increasing foodgrain production as impressive quantity of rice and wheat are produced from the very first year. It is interesting to note that production of rice and wheat from reclaimed alkali soils was substantially higher than the district and state averages (Table 5). The production further increased over the years. The paddy yield was as high as 5.15 t/ha. in Kapurthala and 4.85 t/ha. in Karnal during the fifth year of reclamation. The wheat yield in the corresponding year was 2 61 t/ha. in Kapurthala and 2.72 t/ha. in Karnal. Wheat yield in Uttar Pradesh was rather low (0.74 t/ha) in the first year. This calls for identification of the possible constraints, viz. technological, socio-economic, organisational, etc.

If entire area under alkali soils in the Indo-Gangetic region is reclaimed and produces rice and wheat equivalent to the state averages, these lands will add about 6 5 million tonnes to the national foodgrain production. However, the production of rice and wheat may go as high as 8.88 million tonnes if production per hectare reaches the same level as from the average productivity achieved on the reclaimed alkali soils.

Policy issues

Following issues need special attention to accelerate the pace of reclamation of alkali soils in the region.

Subsidy plays a significant role in economic development of any developing country. To attain the goal of food self-sufficiency, government adopts short-run policies, such as support prices of products and subsidy on inputs to stimulate the producers to increase their food production along existing production function (Barker and Hayami, 1976). Provision of subsidy on various components for reclamation of alkali soils is one such step to increase foodgrain production. Presently, subsidy on amendment is being given at the rate of 50-75 per cent in Haryana, Punjab and Uttar Pradesh. In addition, Uttar Pradesh government is providing subsidy on installation of tubewell under various schemes in different districts. It has been reported that benefits of the subsidy are much higher than that of the cost (Joshi and Agnihotri, 1982). In fact, a subsidy on gypsum in Haryana and Punjab motivated the farmers to exploit the potential of barren and uncultivated alkali soils. The subsidy was justified because it contributed to food production, rural employment and accelerating the demand for farm and non-farm inputs. It is therefore necessary to continue subsidy on amendment and installation of tubewells.

A flexible and simple credit policy will help the potential borrowers for reclamation of alkali soils for crop production. A good credit policy for reclamation of alkali soils may be divided into four components : (i) land development (ii) amendment (iii) installation of tubewell and (iv) crop production. It would be desirable to provide credit for each component, if necessary. While cooperative banks in Haryana have subscribed these norms for lending, the nationalised banks have yet to formulate policy in this respect.

Assured irrigation is a pre-requisite for successful reclamation of alkali soils. The installation cost of tubewell is too high and is often beyond the reach of small and marginal farmers, especially the *patta* holders in Uttar Pradesh. A study in Hardoi district of Uttar

Table 1

Extent of waterlogging and soil salinity/alkalinity in selected canal command ('000 ha)

Sr No	Project	State	Extent of Waterlogging	Extent of Soil Salinity/ alkalinity
1	Ram Ganga	U P	195 0 (9 7)	352 4 (17 6)
2	Sharda Sahayak	U P	260 0 (7 0)	253 3 (6.7)
3	Gandhak	Bihar	211 0 (20 1)	400 0 (38 1)
4	Sri Ram Sagar	A P	60 0 (47 6)	1 0 (0 8)
5	Nagarjunc Sagar LBC	A P	19 5 (5 9)	13 0 (3.9)
6.	Nagarjunc Sagar RBC	A.P	114 0 (24 0)	—
7	Tungabhadra	A P	30 0 (10 0)	14.8 (5 0)
8.	Ukai-Kakarpur	Gujarat	16 2 (4.3)	8 3 (2 2)
9	Mahi Kadana	Gujarat, Rajasthan	82 8 (16 8)	37 8 (7 3)
10	Tawa	M P	—	6 6 (3 8)
11	Chambal	M P, Rajasthan	98 7 (20 3)	40 0 (8.2)
12	Rajasthan Canal	Rajasthan	43.1 (8.0)	29.1 (5 4)

Note : Figures in parenthesis are percentage area to the irrigation potential.

Source : Kandpal (1982) ; 2. Ambekar (1986), 3. Das Gupta (1982) ; 4. Hassan and Venkat Reddy (1982) 5-7. Govt. of Andhra Pradesh (1989) 8-12 Joshi and Agnihotri (1984).

Table 2

Magnitude of alkali soils in Indo-Gangetic plains

State	Geographical area (000 ha)	Net area sown (000 ha)	Salt affected area (000 ha)	Alkali area (000 ha)	Alkali area to net area sown (%)	Districts affected
Haryana	4421	3616	500	250	6 91	Gurgaon, Jind, Karnal, Kurukshetra, Rohtak and Sonepat
Punjab	5036	4189	700	500	11 94	Amritsar Gurdaspur, Kapurthala, Patiala, Sangrur
U P.	29441	17242	1300	655	3 80	Aligarh, Azamgarh Bareilly, Etah Etawah, Fatepur, Ghazipur, Hardoi Kanpur, Lucknow, Mainpuri, Meerut, Partapgarh Rai Bareilly, Sultanpur Unnao

Table 3

Item wise break-up of cost on soil treatment

	Item	Cost (Rs /ha)
1	Land development	2020
2	Leaching	260
3	Amendment gypsum @ 12 t/ha	
	(i) No subsidy	5380
	(ii) 75% subsidy	1780
	Total (i) No subsidy	7660
	(ii) 75% subsidy	4060

Table 4

Employment generation and land reclamation (man-days/ha)

State	District	Employment generation	
		Initial year	Subsequent year
Haryana	Karnal	165	135
Uttar Pradesh	Hardoi	235	184
	Etah	207	162

Table 5

Productivity of paddy and wheat on alkali soil under reclamation vis-a-vis state and district average (kgs/ha)

State	Location	Paddy		Wheat	
		I	V	I	V
Haryana	Reclaimed soil	3150	4850	1340	2720
	Distt Karnal	2052	2783	2153	2671
	Haryana State	2059	2607	1979	2524
Punjab	Reclaimed soil	3140	5150	1670	2610
	Distt. Kapurthala	2758	2913	2148	2611
	Punjab state	2553	3144	2375	3005
Uttar Pradesh	Reclaimed soil	3360	3030*	740	1380*
	Distt Hardoi	1275	NA	1955	NA
	Uttar Pradesh	1361	NA	1934	NA

Note: 1 I and V refer to the year of reclamation
2. (*) refers 2nd year of reclamation.

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Soil desalinisation

Neelam Kapur

IN INDIA, WHERE 70 PER CENT of the population is dependent on agriculture and where the contribution of agriculture to economy is around 33 per cent, the optimum development and efficient utilisation of water resources for increasing agriculture production and productivity becomes imperative over the years. The Government is giving greater attention to sustained and systematic development of irrigation facilities for realising the full potential of our agriculture sector

A large number of major and medium irrigation projects have been taken up for extending irrigation facilities to boost the agricultural production. By the end of the VII Plan, it is expected that 70 4 million hectares of land will be provided with irrigation water.

However, development of irrigation facilities without adequate drainage arrangements, improper water management practices and congestion in drainage leads to salinity problem in agricultural lands. With the over-application of irrigation there is a rise in the water table. This is compounded by a drainage congestion Due to capillary action the salts rise to the surface of the soil and gradually the soils become salt-affected.

Saline soils

Soils which contain excess of neutral soluble salts affecting the crop growth adversely are called saline soils The neutral soluble salts are chloride and sulphates of sodium, calcium and magnesium. The critical limit at which many useful plants are adversely affected in growth by the salts is electrical conductivity of saturation extract of 4 mmhos/cm. The soils having salt content more than this level and exchangeable sodium percentage less than 15 are usually defined as saline salts.

It is estimated that, in India, nearly 7 million hectares of land is salt-affected and is therefore unfit for cultivation. In Delhi region over 21% of the cultivable area is affected by salinity, in Punjab over 16%, and in West Bengal and Haryana 13% of the cultivable area is saline.

Proper drainage system

The only practical way to remove excess salts from soils is by leaching with water. This may be done most effeciently by covering the field with water for some time. The amount of salts removed depends entirely upon the quantity of water that passes through the soil. Therefore for leaching to be effective, it is essential that drainage facilities should be good. The use of ground water in conjunction with surface water is also a step towards keeping ground water levels at safe limits for avoiding rise of salts due to capillary action

However, it is imperative that drains be well maintained to remove excess water from the field. The Central Government is implementing schemes under the Command Area Development Programme through which financial assistance is given for construction and maintenance of field drains and channels. Drainage schemes are also being implemented in Punjab and Bihar on a massive scale to improve the overall drainage of the area

With the introduction of modern technology in the irrigation sector it is now possible to line major irrigation canals with concrete slabs. This prevents the seepage of water from the canals and avoids addition to the underground water table

Water management techniques

Perhaps, the most important step to prevent the occurence of salinity in soils is the efficient and judicious use of irrigation water for agricultural purposes. The 20-Point Programme formulated in 1986 emphasizes the need to ensure "better use of irrigation". Under point 3, matching assistance is being given by the Central Government to promote better water management techniques, the use of sprinklers and drip irrigation systems Funds are also provided to help farmers form associations to ensure equitable distribution and proper application of water

The Government's efforts notwithstanding, the problem of soil salinity calls for collective efforts by voluntary organisations, farmers and other social groups Voluntary organisations, by launching mass awareness campaigns among farmers can teach them about the problem of soil salinity, the reasons for it and the remedies thereof. Farmers, on their part, can prevent the soil from becoming saline by adopting proper water management practices and by judicious application of fertilisers and irrigation facilities. Hence, all concerned should make continuous efforts to stop degradation of our soils.

P.I.B

Integrated rural development programme —A study in Etah district of Uttar Pradesh

Dr. Balishter & Dr. Umesh Chandra

The IRDP pasture may not be as green as made out to be. In this evaluation, the authors have shown that the rural poverty alleviation programme, could not make much headway amongst the least developed groups in the case study at Etah District in Uttar Pradesh. While the programme as such has enabled better generation of income in non-agricultural persuits, rampant corruption at the implementation stage is sapping the vitality of the programme. This calls for immediate attention, feel the authors.

THE INTEGRATED RURAL Development Programme is a major poverty alleviation programme which accounts for nearly half the total Plan Outlay on rural development. This programme aims at raising the poorest families in the rural areas above the poverty line on a lasting basis by providing them with financial assistance, partly by loan and partly by subsidy to acquire productive income generating assets. During the Sixth Plan period the programme aimed at providing assistance to 15 million rural families below the poverty line. However, as claimed it covered 16.56 million families with a total expenditure of about Rs. 1661 crores. The bank credit under the programme over reached its target of Rs. 3000 crores and amounted to Rs. 3080.41 crores. Thus the programme has exceeded the physical targets both in terms of total disbursements as well as the number of beneficiary families covered. The programme has been expanded vastly in the Seven Plan. The total number of families to be covered under IRDP in the Seventh Plan is 20 million. In terms of financial target the total allocation for the Seventh Plan is Rs. 3000 crores.

But achieving the physical targets of covering the allotted number of families or advancing loans up to the limit of financial allocation does not necessarily mean that the main objective of the Programme of lifting the families from below the poverty line has been attained. The real success of the programme depends on how many of such families have effectively been benefitted in terms of assets created out of the loan and their retention; generation of incremental income and crossing over the poverty line. Independent Evaluation Studies of IRDP indicate that about 29 per cent of the assets provided under IRDP were simply 'not intact'. Over 45 per cent of the assets created under the programme had nothing to show in terms of income flows. About 49 per cent of the beneficiary house-holds were able to cross the poverty line at Rs. 3500 adopted in Sixth Plan. It is amazing that only 12 per cent of the old beneficiary households had managed to cross the revised poverty line at Rs. 6400 adopted in the Seventh Plan. Thus a qualitative assessment of this Programme at micro-level is essential to take measures to effectively implement the programme for achieving the stated goals. The present evaluation study is an attempt in this direction.

Methodology

Etah is a backward district of Agra division having mass poverty. Therefore, this district was selected purposely. Among all 15 blocks of the district C.D. Block Sakit, being the leading block both in terms of number of families and amount of loan advances under IRD Programme, was selected intentionally. Out of 165 villages in the selected Block, 10 villages were selected at random. The secondary data relating to number of poor families financed, amount of loan disbursed to different categories of families, purpose-wise disbursement of loans were taken from the records of the bank and C.D. Block under study. For assessing the impact of bank finance on family incomes of the beneficiary – families and number of families crossing the poverty line a sample of 150 beneficiary families consisting 50 small farmers, 50 marginal farmers and 50 landless labourers were selected in the villages under study. Primary data for these families were collected for the year 1982-83 and 1984-85 (before and after bank finance).

Coverage

In the sample 10 villages, the total number of families is 2405. The weaker sections, including small and marginal farmers and landless labourers, comprise 1905 or nearly 79 per cent of all families. Of these 1905 poor

families, the small farmers, marginal farmers and landless labourers respectively comprise 480 (25%), 1222 (64%) and 203 (11%). The scheduled caste and non-scheduled caste families respectivelv comprise 622 (33%) and 1283 (67%) of the total (1905) poor families. This indicates that the problem of rural poverty is a mass phenomenon and is not only confined to the scheduled castes alone.

The total families financed under IRDP by the Commercial banks in the sample villages during the Sixth Plan numbered 569. Of these 569 families the small farmers, marginal farmers and landless labourers, respectively, constituted about 31, 51 and 18 per cent. The scheduled caste families financed under the Programme constituted about 49 per cent of the total families financed under the programme. Thus the coverage of scheduled caste families has been much higher than the target fixed (30%) indicating the priority accorded to the most disadvantaged section of the rural community in the area under study.

The total loan advances by the commercial banks in the villages under study during the Sixth Plan totalled about 16.76 lakhs of which 49 per cent were advanced to scheduled caste families. The per family loan advances for creating assets were about Rs. 2942 in case of scheduled caste families and Rs. 2951 in case of non-scheduled caste families. If we consider the loan advances per family for different economic categories (small farmers, marginal farmers and landless labourers) it is almost Rs. 3000. Thus it is apparant that proportionately more emphasis has been given to assist the scheduled caste families as their proportion in the total families of weaker sections is about 33 per cent only.

Purpose wise loans

Out of 569 families financed by the banks 225 or about 40 per cent were provided loans for purchase of buffaloes, 206 or about 36 per cent for purchase of bullocks, 38 or about 7 per cent for goat, 38 or about 7 per cent for tonga and horse, 26 or about 5 per cent for piggery, 18 or about 3 per cent for retail trade and 18 or about 3 per cent for other miscellaneous purposes. Of the total loan advances by the banks about 41 per cent were made for purchase of buffaloes, 36 per cent for purchase of bullocks, 10 per cent for purchase of tonga and horse, 4 per cent for goat, 4 per cent for piggery, 2 per cent for retail trade and about 3 per cent for other miscellaneous purposes. It is thus clear that purchase of buffaloes and bullocks has been the dominant purpose of loans accounting for about 76 per cent of the beneficiary families as well as the amount of loan, and thus it appears to be the main thrust of the programme for removal of poverty from the rural areas in the area under study.

Category-wise analysis indicates that for small and marginal farmers the purchase of bullocks was the most dominant purpose accounting for over 43 per cent of the total loan while purchase of milch animals accounted for about 39 per cent of the total loan. In case of landless labourers, the purchase of milch animals was the most dominant purpose accounting for about 56 per cent of the total loan. It implies that efforts to remove rural poverty have still their focus on increasing income through improvement of agriculture, dairy and an activity allied to agriculture. It is to be noted, landless labourers were advanced more loans (about 31 per cent of the total loan) for non-agricultural purposes as compared to small and marginal farmers (not more than 10 per cent of the total loan in each category).

Impact of IRDP

Out of 150 beneficiary families selected to examine the impact the IRD Programme, 85 or about 57 per cent were scheduled caste families and 65 or about 43 per cent were non-scheduled caste families. Of these (150) families 127 or about 85 per cent were provided loans for agricultural purposes and only 23 or about 15 per cent for non-agricultural purposes. The per family bank loan provided to the sampled (150) families worked out to Rs. 3136 in case of small farmers, Rs. 3088 in case of marginal farmers and Rs. 2932 in case of landless labourers with an overall average of Rs. 3052.

The overall increase in income sample beneficiary families was worked out to about 38 per cent. The higher increase was recorded for landless labourers in both scheduled caste (49 per cent) and non-scheduled caste families (48 per cent).

Analysis of data revealed that overall increase in income of the families financed for agricultural purposes is about 32 per cent while in case of families financed for non-agricultural purposes, it is about 74 per cent. Among agricultural activities increase in income is the highest in case of piggery (48%) and the lowest in case of buffaloes (31%). Among non-agricultural activities the increase in income is the highest (94%) in case of Tonga and horse and the lowest in case of bycle repair (37%). It is thus apparent that non-agricultural activities have a higher income generating potential than agricultural activities.

Families crossing poverty line

Out of 150 sample beneficiary families 99 or about 66 per cent crossed the poverty line of Rs. 3500. The extent of families crossing the poverty line was more in case of scheduled caste (71 per cent) as compared to non-scheduled caste (60 per cent) families. It is further revealed that the extent of families crossing the poverty line according to economic categories was almost equal (68%) in case of small farmers and landless labourers while in case of marginal farmers it was about 62 per cent. It is important here that of 99 families crossing the poverty line, 19 were already above the poverty line. Thus the percentage of beneficiaries whose income had risen above the poverty line of Rs. 3500 came to 56 per cent of all eligible beneficiaries (i.e. excluding the 19 families who were not poor). It is important here that large proportion of beneficiaries (44%) who crossed poverty line were in the higher income brackets (Rs. 3000 – Rs. 3500) before IRDP assistance. It is evident that it will be easier for the better-off among the poor to cross the poverty line than those at the bottom. The latter would require higher incremental income in order to rise above the poverty line. It is interesting here that about 76 per cent of beneficiaries in the two higher income classes

before IRDP (Rs. 2500 - Rs. 3000 and Rs. 3000 - Rs. 3500) have crossed the poverty line income of Rs. 3500 as compared to 22 and 31 per cent of beneficiaries in the two lower classes (Rs. 1500 - Rs. 2000 and Rs. 2000 - Rs 2500).

Problems

The sampled beneficiary families (150) reported several problems which caused lower income generation About 65 per cent families reported delay in disbursal of loans by banks. About 59 per cent families reported that quality of assets purchased under IRDP was poor. It is also important here that about 53 per cent families reported that the prices taken by the sellers for the assets were much more than the prevailing prices in the area of study. About 14 per cent families reported that subsidy amount could not be released even after five months of loan disbursement. It is interesting to note that out of 150 sampled families 146 or about 97 per cent reported that implementing officials have taken bribe from them for the selection and for the sanctioning of the loan under IRDP. All these 146 families gave bribe to Block officials, veterinary doctors ranging from Rs 125 to Rs 500 in each case. Thus a good part of subsidy has been pocketed by the implementing agencies. Almost all families reported that no attention was paid by the implementing agencies to provide any supporting facility viz., veterinary assistance technical guidance, marketing facility, provision of loan for working capital, etc. Most of the families reported that they were not provided any guidance about insurance cover. This resulted that out of six beneficiaries of milch cattle whose cattle were either dead or stolen, only one beneficiary could secure the insurance cover.

Conclusions

The main conclusions that emerge from this study are:

1 The weaker sections, including small and marginal farmers and landless labourers comprise about 79 per cent of all families in the area of study The scheduled caste and non-scheduled caste families respectively comprise 33 and 67 per cent of the total poor families. This indicates that the problem of rural poverty is a mass phenomenon and is not only confined to the scheduled castes.

2. The total families financed under IRDP by the banks during the Sixth Plan numbered 569. Of these 569 families the small farmers, marginal farmers and landless labourers respectively constituted about 31, 51 and 18 per cent. The scheduled caste families financed under the Programme constituted about 49 per cent of the total financed families Thus the coverage of scheduled caste families has been much higher than the target fixed (30%) indicating the priority accorded to the most disadvantaged section of the rural community in the area of study. In terms of amount of loan advances proportionately more emphasis has been given to assist the scheduled caste families (49 per cent of total loan advances) as their proportion in the total families of weaker sections is about 33 per cent.

3. The purchase of buffaloes and bullocks has been the dominant purpose of loans accounting for about 76 per cent of the total beneficiary families as well as the amount of loans, and thus it appears to be the main thrust of the programme for removal of povery from the rural areas in the area under study.

4. Category-wise analysis indicates that for small and marginal farmers the purchase of bullocks was the most dominant purpose accounting for over 43 per cent of the total loan while purchase of milch animals accounted for about 39 per cent of the total loan. In case of landless labourers, the purchase of milch animals was the most dominant purpose accounting for about 56 per cent of the total loan. It implies that efforts to remove rural poverty have still their focus on increasing income through improvement of agriculture dairy and allied activity to agriculture.

5. The bank finance made to poor families under IRDP had enabled the families to increase their income to about 38 per cent Interestingly, the impact of the bank finance was relatively more on the landless labourers both in case of scheduled caste (49 per cent) and non-scheduled caste (48 per cent). It is further revealed that non-agricultural activities generated much higher (74 per cent) income as compared to agricultural activities Among agricultural activities piggery generated highest (48%) income and buffalo the lowest (31 per cent). And among non-agricultural activities tonga and horse generated the highest (94%) and bicycle repair the lowest (37%). It is thus apparent that non-agricultural activities have a higher income generating potential than agricultural activities. Thus there is a need for an effective programme of diversification of rural economic activities outside agriculture.

6. Out of 150 beneficiary families 99 or about 66 per cent could be able to cross the poverty line of Rs. 3500. It is important here that of 99 families who crossed the poverty line 19 were already above the poverty line before the IRDP assistance. Thus the beneficiaries whose income had risen above the poverty line of Rs. 3500 came to 56 per cent of all eligible beneficiaries (i.e. excluding the 19 families who were not poor) It is further to be noted that the large proportion of beneficiaries (44%) who crossed poverty line were in higher income brackets (Rs. 3000 - Rs. 3500) before IRDP assistance.

7. The families assisted under IRDP reported several problems which caused inadequate impact on income generation These are delay in disbursal of loan, poor quality of assets, higher prices of assets charged by sellers, delay in releasing subsidy, bribe taken by implementing agencies, lack of supporting facilities, non-availability of loan for working capital and lack of guidance about insurance cover. These problems need immediate remedial measures for successful implementation of the programme ☐

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Strategy to enhance Sorghum production

Dr. Gursharan Singh Kainth

Sorghum,((Jowar), an important millet with a major role in the coming years, has great potential. Both, its production and productivity, can be raised by ensuring distribution of better seed varieties, fertilizers and suitable crop management practices. The author makes a strong plea for a well-defined strategy with proper economic support.

MILLETS, THE SMALL SEEDED cereal crops, provide foods to millions inhabiting the semi-arid tropics of the world and also the main source of fodder for cattle. They cover Sorghum (*Jowar*), Pearl Millets (*bajra*) and small millets. The last category includes kodo (*Kodon*); foxtail (*Kangni*), little (*Kutki*), proso (*Cheena*) and barnyard (*sawan*) millets. Millets are nutritionally superior to rice and comparable in many respects with wheat. They are packed pills of energy., protein, minerals and vitamins. According to Central Food Technological Research Institute, new uses make it possible to broaden consumer appeals and greater utilization of millet grains produce new sales outlet and profits for the farmers and generate job opportunities and help erase the stigma of coarseness added to these small grains.

Millets, as major components of the dry farming system, have a major role to play in the coming years as the next breakthrough in foodgrain production has to come from them. The untapped genetic and development potential of millets and their capacity to withstand adverse weather conditions and impart stability to foodgrain production, unexploited export potential, the scope for development of value added products – all these are favourable factors for millets to become an important segment of the food economy. The record production of foodgrains in 1988-89 to which millets have also contributed their share of 22-24 million tonnes should reinforce the confidence in the technology generated and available in meeting the future food needs.

Principal millet

Sorghum is the principal millet covering nearby one-half of the total millets area. This is grown both in *Kharif* and *Rabi*, with about two-third and one-third of the area respectively. Time series data on area under sorghum reveals that it remained more or less stable around 16 millions hectare during the last 17 years spanning the period 1970-71 through 1987-88. Average area, production and productivity during the reference period and their estimates of growth rates are reported in Table I and II respectively. Total Sorghum production during the reference period showed significant trend: the rate of growth being 1.814 per cent per annum. Likewise productivity of Sorghum also showed highly significant trend, the per annum compounded growth rate being 2.23 per cent. Apparently, despite decline in area under Sorghum, production increases because of greater increase in productivity. This situation is more perceptible during the *Kharif* season. During *Kharif* area under sorghum declined at the rate of 0.34 per cent while productivity increased at 2.31 per cent and hence production at 1.96 per cent per annum. During *Rabi* season, area under Sorghum increased at a very low rate of 0.21 per cent, while productivity at 1.29 per cent and hence production at 1.41 per cent per annum.

Much variation

However, considerable variation from year to year exists depending upon seasonal conditions. These variations are more during *Rabi* season than *Kharif* as measured by coefficient of variations. Production was found to vary from 5 to 9 million tonnes during *Kharif* and 2 to 4 million tonnes during *Rabi* season. Similarly, productivity also varied between 500 to 900 Kg/ha. in *Kharif* and 300 to 600 Kg/ha. during *Rabi* seasons. The maximum production level achieved so far has been 12 million tonnes during 1980-81 season. Furthermore, a

close look at Table 1 reveals that variation in production was due more to productivity variations than variations in area in both the *Kharif* and *Rabi* seasons as well as for both the seasons taken together.

There has been considerable variations in productivity across different states in both the seasons. During *Kharif* season, three states, namely, Maharashtra , Karnataka and Madhya Pradesh maintained their higher productivity than national average. Two states, viz., Gujarat and Rajasthan, have recorded very low productivity. This was due to high proportion of forage types in Gujarat while successive years of drought in Rajasthan. During *Rabi* season, only Andhra Pradesh maintained reasonably higher level of productivity among the three major states, other two being Maharashtra and Karnataka. The leading *Rabi* Sorghum state, Maharashtra, which accounts for nearly 56% of total *Rabi* area has very low productivity while Karnataka has been able to maintain moderate level of productivity.

Great transformation

A major transformation in Sorghum cultivation in India occured with the release of first commercial Sorghum hybrid CSH I, in 1964. The hybrids and high yielding varieties released in the subsequent years enabled to increase Sorghum productivity and hence production. They have also provided the opportunity to introduce the concept of improved management in the crop. In other words, they have wide adaptability, early maturity, good fertilizer responsiveness and ability to withstand several forms of biotic and abiotic stresses.

Over the last 15 years, as many as, 45 hybrids and improved varieties have been released to different states and under different agro-ecological situations. Nevertheless, the genetic potential of these varieties have not been fully exploited. It is to be noted that only half of the potential of high yielding varieties could be realised. The average yield potential of released and pre-release stage hybrids and varieties based on trials conducted at Research farms was found to range from 3 to 4 tonnes per hectare during *Kharif* and 2.3 to 2.7 tonnes per hectare during *Rabi*. And the highest yield obtained from National Demonstrations were 6 to 7 tonnes per hectare. On the other hand, the average yield realised in some of the districts in Maharashtra state which have achieved near total coverage with hybrids have been as low as 1.2 to 1.5 tonnes per hectare. There is therefore, wide, but bridgeable, gap between what is possible and what is achieved.

Table 1

Area ; Production and Yield of Sorghum : Average of 1970-71 through 1987-88

Particulars	Kharif	Rabi	Total
Area in (000' hectare)	10036 (3 0943)	6127 (6.1111)	16163 (2 3583)
Production '000 t	7374 (13 9273)	3044 (18.7919)	10418 (14.1181)
Productivity (Kg/ha)	735 (14.0881)	496 (17.5872)	641 (14.6198)

Table II

Estimates of Growth Rates of Area, Production and Productivity of Sorghum in India: 1970-71 through 1987-88

Particulars	Kharif	Rabi	Total
Area	** 0 9966 (2 4546)	ns 1 0021 (0 6652)	ns 0 9986 (1.1505)
Production	*** 1 0196 (3 2604)	ns 1 0141 (1 2974)	** 1 01814 (2 7094)
Productivity	*** 1 0231 (4 1806)	ns 1 0129 (1 2959)	*** 1 0223 (3.6382)

Figures in parentheses are t-value of the respective parameters
*** implies significant at 0 01 level
** implies significant at 0 05 level
* implies significant at 0 10 level
ns implies not-significant

Rich potential

Sorghum in India is almost entirely (95 per cent) grown under rainfed conditions. Nevertheless, by virtue of its drought tolerance nature and ability to produce high yields under appropriate genetic background, it is possible to realise high yields by adopting suitable crop management practices meticulously.

Sorghum, essentially a dryland crop, is grown on poorest soils where no other crops can be grown. This is compounded by the poor environment in which it is grown. Alleviation of nutritional stress through the application of fertilizers will enable the plant not only to fight drought effectively, but also to help increase productivity. Moreover, coverage under high yielding varieties should be given top priority as seed is a critical input for all production package. An action plan is needed for production and distribution of seeds of improved varieties. Improved seeds have to be supplied either free of cost or at subsidised rates. At the farmer's level, a barter seed exchange programme should also be thought of.

As it would be unwise to bank on good monsoons every year, efforts will have to be made to give a boost to production programmes with the accent on transfer of technology and application of inputs under normal weather conditions. In dry land agriculture, drought is quite a common phenomenon, and much can be done to mitigate its impact on farm production and income through a well defined strategy. The main constraints is the limitation of inputs. For economic reasons, the poor dryland farmer is unable to use the minimum cash inputs in cultivation. Without cash inputs in the form of improved seeds and fertilizers, productivity can not be enhanced. The situation can only be set right through an appropriate socio-economic action plan. ☐

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Imperative of raising Coarse Grains production

Dr. S. Paul

Production and productivity of coarse grains have to be increased to increase availability of foodgrains. According to the author, coarse grains can withstand poor soil and irrigation conditions and also has a rich potential. A stabilising factor can be injected to the food scenario, by increasing the area under coarse grains and introduction of exotic varieties.

THE RECENT NEWS OF THE QUANTUM jump in Indian agriculture—the production of foodgrains shooting upto 172.18 million tonnes—has caused a glow of optimism all over. However, our production system, despite its peaks and plateaous, concelas some very disquieting grey areas. Coarse grains — the poor man's staple diet—have been declining both in production and in acreage over the past two decades. The figure has come down from 30 5 million tonnes in 1970-71 to 25 844 m t. in 1987-88. Though the preliminary estimates for the current year of good monsoon predict a bumper crop, yet it is expected to fall short of the targetted figure by about 1.5 m.t.

The share of the coarse cereals in the total foodgrains has slipped down from 30.7% in 1962-63 to a mere 18.6% in 1987-88. This contrasts starkly with the increase in wheat share from 13.5% to 32 6% during the same period.

The per capita availability has gone down from 418 5 grain cereals per day in 1965 (the eve of Green Revolution) to 408.2 gram in 1987-88. This figure, when coupled with the ever-decreasing figures of pulses consumption, a decline from 69.0 g to 33.25 g. per capita, add upto the continuing misery, especially of the landless labourers, tribals and the marginal farmers. This ultimately manifests itself in the grave 'Nutrition Gap'

Minimum input

The coarse grains are usually grown on poor, marginal soil and that too in the rainfed conditions and with minimal inputs. An analysis of the growth rates of the major crops in both drought and peak conditions, as shown in Table 1, brings out this dismal picture.

Table 1

Comparison of Growth Rates of Different Crops (%)
Annual Compound Growth Rates in Periods

	Through Years 1979-80 1967 88	Peak Years 1983 81 — 1988-89
Rice	3 7	2 8
Wheat	4 5	3 5
Pulses	3 2	3 1
Total Foodgrains	2 9	2 2
Coarse Cereals	– 0 5	– 1 1

Scrutinising the production figures of these coarse grains during the last 2 decades, one finds recurring spells of this phenomenon of negative annual growth rates

1971-72	19 49%
1979-80	11 40%
1985-86	15.94%

Jowar (sorghum) however presents bit of a rosy picture. Despite severe droughts, its production went up substantially from 9.19 m t. in 1986-87 to 11.85 m.t in 1987-88 (+28 94% growth) But this was offset by severe shortfalls in others Bajra declined from 4.51 m.t. to 3.28 m t (–21 28%) and maize from 7.59 m t to 5.63 m.t. (–23.83%) during the same period. It thus seems that all the winds of change have conveniently bypassed these coarse cereals. This factor comes out clearly in Table 2, showing the fall in yield levels too:

Table 2

Yield Levels of Different Crops

	1970 71	1980 81	1987-88	Growth between 1970 & 1988 (%)
Jowar	488	660	757	62 44
Maize	1297	1159	1016	21 67
Bajra	622	458	378	– 39 23
Rice	1123	1336	1473	+ 31 16
Wheat	1307	1630	1995	- 52 63

Another important contributing factor to production is the area covered under these crops. It declined to 36 million ha by 1987-88 The area under Jowar declined from 17.37 million ha in 1970-71 to 15 65 m.ha in 1987-88 . that of Maize from 5 85 m. ha to 5 54 m ha and that of bajra from 12.91 m. ha to 8 69 m. ha

Maharashtra is the largest jowar-growing state in the country, accounting for 42% of the area and 50% of total jowar production in 1987-88. Rajasthan, Gujarat and Haryana are the major bajra producing states, while maize is an important crop in UP, Rajasthan and Bihar. Majority of the area under coarse cereals is under unirrigated conditions — bajra 94%, maize 79%, jowar 96% and barley 54%.

The apathy of our scientists also gets reflected in the very uneven levels of production of different states, as also the yawning yield gap, as shown in table 3.

Table 3

Yield Gap in Pearl Millets (Bajra) (qtl/ha)

	Yield in National Demonstrations Average	Yield in National Demonstrations Highest	Average State Productivity
Gujarat	26.41	39 40	9 29
Haryana	22 08	33 25	6 10
Maharashtra	37.20	40 10	4 28
Karnataka	26 75	27 30	3 71
Rajasthan	25 30	34 40	2 67

Between the average production of Gujarat and Karnataka or Rajasthan there is a great leeway yet to be covered. But then the genetic potential in majority of the states is shown to be around 4.0 t/ha for bajra and other small millets like kodo ragi etc could be around 2.0 t/ha As such, lot more needs to be done to boost the production of these coarse grains.

Improved package of practices

Just like in wheat and rice, some of the improved package of practices could help improve production herein too. Some of these important recommendations are :

1. Choice of High Yielding Variety seeds/hybrids for select areas :
2. Expansion of area under the improved varieties :
3. Adoption of recommended practices like timely sowing/advanced sowing time, optimum seed rate and plant population, suitable fertiliser doses and timely weed control & pest control.
4. En-block sowing with varieties of same maturity to avoid build up of pests.
5. Pre-sowing irrigation in deficit-moisture areas.
6. Greater use of biofertilisers & organic manures/ mulches.

Advancing the date of sowing of sorghum from Oct. 12 to Sept. 19 at Bellary increased the production from 20.0 to 49 5 qtl/ha and in Bijapur, shifting it from Sept. 24 to August 24 increased sorghum yield from 17.1 t to 22.7 t/ha. The adoption of new/improved varieties gave higher yields, as shown in Table 4 :

Table 4

Yield of Improved Genotypes

Centre	Crop	Yield (Qtl/ha)
Hyderabad	Sorghum Local	14 4
	Sorghum CSH 6	47 4
Bangalore	Ragi PR 202	44.7
	Ragi HR-220	44 8
Bellary	Sorghum SPH 85	30 0
	Sorghum SPV 268	23 4

Effect of plant population and proper thinning also has important gains, as reported in sorghum from Bellary While 1 5 lakh plants per ha yielded 15.9 qtl/ha, it went upto 22 5 t/ha with plant reduction to 75,000/ha by removing the 2nd plant. And when the 2nd row was removed, the yield went upto 22 9 qtl/ha Application of Nitrogen 50-75 kg/ha helped increase the yields to 15.4 to 25.1 t/ha in bajra, while 20 kg N/ha to ragi/crop gave 35.3 t/ha yields. Since fertiliser is a costly item for most of the marginal farmers/tribals, its doses could be positively reduced by the judicious application of biofertilisers. Azospirillum will help save 20-40 kg N/ha, besides boosting the production by 33% to 63% in sorghum and 22-26% in barley crops Blue Green algae applied to sorghum and barley will help fix N from the atmosphere upto 30-40 kg per ha Mulch or organic matter application could also check soil erosion by 95% and also reduce the run off by 80%, thus adding to the productivity level of the crops

In order to meet the increasing foodgrains needs of our growing population — it is going to be around 225 million tonnes for about 1000 million people by the year 2000 AD, we must lay far greater emphasis upon boosting the productivity of these coarse grains. Firstly, they need less inputs and are very hardy in nature — mostly grown in the rainfed areas. Their ability to make use of the second grade, marginal soils would mean greater utilisation of our land/resources. Further, the yield gap analysis shows that these coarse grains have large genetic potential to offer for further exploitation than the traditional crops of wheat and rice. And the latter needs far more chemical fertilisers, irrigation and other inputs to yield comparatively modest additional gains. And as the reports from Punjab & Haryana show, the cost of production of these has gone up too much. Thus, in the overall analysis, greater attention and a small amount of extra inputs given to these poor man's grains would yield far more dividend and also help keep the production costs within reasonable limits too. That way, we can manage to assure better per capita availability of the foodgrains to the weaker sections. And if these 40 million ha. under the coarse grains can be coaxed to better productivity levels, then we can expect a minimum of 30-35 million tonnes of additional output, which would go a long way in stabilising our foodgrains production. □

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Looking Ahead

From dependence to self-reliance

THE BHARAT HEAVY ELECTRICAL Limited occupies a crucial place in the core sector of the economy—power. In less than three decades, BHEL has taken India from a position of total dependence to complete self-reliance in the internationally competitive field of power plant equipment manufacturer. BHEL supplied equipment today account for nearly 63% of the installed capacity in the country beginning from a scratch as late as 1970. The entire installed capacity prior to 1970 consisted only of imported equipment. Now the company supplies a wide range of products and services for the energy sector covering power, oil and coal industry, transportation and defence sectors of the country. Last year the company achieved a turn-over of Rs. 2620 crore with a record pre-tax profit of over Rs. 200 crore. The company has earned the rare distinction of making profit continuously in the past 17 years.

The BHEL story dates back to less than 35 years. The first plant was set up at Bhopal in 1956 under the technical collaboration of M/s AEI, U.K. Subsequently, three more plants were set up at Haridwar, Hyderabad and Tiruchirapalli with Soviet and Czechoslovakian assistance. It has now 13 manufacturing divisions, 8 service centres, 4 power sector regional centres in addition to a number of project sites all over the country. It has emerged as a engineering giant to be reckoned with within the country and outside. It also figures in the Fortune List of largest 500 corporations outside U.S.A.

BHEL covers all the three areas of power generation, viz. Thermal, Hydro-electric and nuclear. For Thermal Projects total turn key capabilities have been developed. From project concept onwards, it takes on complete responsibility, does the system and design engineering and manufacturing and co-ordinates the supply of equipment, right up to its erection and commissioning. It manufactures boilers and thermal terbo generation sets upto 500 Mega Watts rating. It has the capacity to produce equipment upto 1000 MW rating also. The company has developed indigenously several technologies. These include fluidised-bed boilers used in low grade high ash Indian coals and a system for direct ignition of pulverised coal to cut down fuel oil consumption for boilers. With the brightening prospects of natural gas, it has quickly established the capability to manufacture gas turbines

In the field of nuclear power, it manufactures 235 MW steam generators, turbine generators and associated auxiliaries which have been supplied to atomic power plant at Rajasthan, Kalpukkam and Narora. The company has also geared itself for the design and manufacture of 500 MW new sets in line of the country's nuclear programme.

The company has branched out to new and potentially rich areas It has entered the communications field with the manufacture of EPABX and RAX-based on C-Dot. It has also chalked out plans to make other telecommunication equipment. In the oil sector it has developed and supplied super deep drilling rigs. Cathodic protection system which is used to prevent corosion of off-shore vessels, structures and pipe lines which were hitherto been imported. In the field of transportation the company designs, manufactures and supplies electric traction and control equipment for a wide variety of electric and diesel locomotives, underground metro-coaches and electric multiple units for suburban trains. Marine turbines for the Indian Navy and diesel generator sets for a variety of uses are also manufactured. It has also started producing AC locomotives for industries.

BHEL has emerged as a quality conscious unit. This has helped it to win most of the thermal project contracts within the country and abroad. Eighty per cent boilers installed in Malaysia are manufactured by it. The company has also recently commissioned a hydro electric set at Tenompangi in Malaysia. It has been supplying power plant equipment and systems to top Japanese companies for installation in China and other Asian countries. The company is also exporting insulators haulage winches and services for renovation, maintenance and operation of power stations.

Courtsey: Backgrounder supplied by BHEL

Book Review

G.A. Patel, U.K. Srivastava, K.R. Pichholiya – Estimation of Pesticide Demand: An Evaluation of Methodologies Oxfored and IBH Publishing Company Pps : xv + 123 Price + Rs. 45/-

Input planning is essential for achieving planned prodution growth. The use of pesticides in India has contributed appreciably towards improving the economic condition of the masses in general and increasing crop yields and improving their quality in particular. Hence, plant protection methods should form an or essential part of the crop production strategy. This in turn implies, that demand estimation for this manufactured input assumes significance and becomes extremely important in order to provide a suitable base for planning and production leading to rapid agricultutral development. This is no easy task in view of the heterogeniety existing within states, with respect to various factors which include inter-alia crop culture, gross cropped area, irrigated area, pest and disease incidence, infrastructural development, extent of rainfall etc. Because of this, the authors have rightly emphasised that the methodology used at the national level will not ipso-facto apply to the region/state/district level.

The book under reivew which is divided into seven chapters begins with a macro level analysis made in order to determine the factors which have influenced the past consumption of pesticides. The authors then go indepth in critically reviewing the existing studies (Programme Evaluation Organisation, NCAER, Pesticide Association of India) which have a bearing on the demand estimation of pesticides. This has been done with an idea to review the methodology and the data base used so far, as well as their reliability in statistical terms.

Cross sectional data for 1971-72 and 1976-77 was subject to multiple regression analysis and some interesting results were observed. Time series data presented problems, because of lack of standardisation of the defination of pesticides and unrealiable sources of the available data. The data problem is quite acute for this input as consumption data unlike frtilizer statistics are not a part of the various sources of data usual in the country's agricultural information system. These two chapters form the crux of the study made by the authors, in improving the earlier attempts of pesticide demand estimation. A quantitative and qualitative review of imports and production of pesticides as a group and also its disaggregates like insecticides and fungicides forms the basis of the next chapter.

The suggestion made by the authors regarding a disaggregate analysis of the heterogenous group-pesticides is thought provoking and would prove to be rather meaningful. The last chapter could have been made crisp by presenting only the recommendations rather than a summary of the earlier six chapters as well.

The authors have done the best they could in view of the data constraints. They have suggested improvements needed in the compilation of pesticide statistics. Regression models and other sophisticated methods of demand forecasting specific to a state/region can only be done once the data base is strengthened. The critical review and the suggested improvements for pesticide demand estimation should prove to be useful both to the policy makers with respect to production and marketing decisions and also to the pesticide industry on the whole.

Urvashi Sadhwani

Entrepreneurship Development under TRYSEM by Anuradha Prasad, Concept Publishing House, New Delhi, 1988. Pages 167, Rs. 125

TRYSEM Programme launched in 1979 is a major scheme for skill transfer among youth hailing from families living below the poverty line in rurual areas. Beneficiaries were provided stipend during the training period and the entrusted financial agencies, the banks, provided credit facilities to the rural youth to pursue their vocations.

This study was conducted during 1982-83 in the villages of Union Territory of Delhi. TRYSEM was launched here in 1979, ten years ago. Twelve villages from the two blocks of Khanjawala and Alipore were selected. Out of 89 beneficiaries, 40 were studies through a specially prepared 'Interview schedule'.

The main trades followed were tailoring, piggery, chalkmaking, tel ghani and handloom. Trades were more diversified in Khanjawala than in Alipore where piggery dominated. There was hardly any attempt made to assess the ability and aptitude of the youth towards self-employment. A stipend of Rs. 50 to 125 per month was given during the training period. It appears that many were lured by this stipend.

The author has tried to study the existing procedure for indentification of the beneficiaries, the adequacy of the training imparted, the personal, institutional and managerial facilitators inhibitors in establishing and running an enterprise, and the execution and monitoring process, their strength and weaknesses. The TRYSEM beneficiaries belonged to the age group above 35 years Those pursuing piggery belonged to balmiki and bhangi castes. The average family income was more than Rs 3500, since Delhi offered jobs to almost all adult members of the family. Average family size was 7.

The village 'youth' selected under the programme were from socio-economically poor sections of the society and had very low human resource development or endowment.

Whether consciously or otherwise, the over riding concern in implementing the TRYSEM appered to be poverty alleviation rather than entrepreneourship development. Being under IRDP had this overtone. The two should be seen as two differnet programmes. Results showed that only 49 per cent of the trained youth could establish their own units and another 5 per cent got employment in some established units. Then what happened to the remaining 46 per cent of the the youth

who were given training? Perhaps it was a waste. Furthermore, it was observed that several of units established by trained youth closed down soon after, throwing the youth back into the ranks of the unemployed. Their risk bearing capacities are also limited, an aspect that TRYSEM has not properly recognised.

Systematic identification of trades based on local needs and resources was not done. One of the major attraction of the trainees was the stipend in the camp and later per month. The training institutions received fee per trainee. The author has observed that the main weakness of the programme was the absence of the requried support system. Veterinary services were not availble or were costly for piggery owners, for example. In case of tailoring trade, sewing machines were indiscriminately distributed to the girls in the villages with no consideration given to the earnings opportunity of the trade. Chalks in the market sold cheaper than those produced by the trainees. The telghani trainees, though got good trai..ing under Ghandhi Darshan, were left to themselves to devise means of securing loans to initiate the venture. In short, no feasibility studies whatsoever were carried out with respect to trades imparted.

The training being imparted for different trades was as mechanical as the selection, with the result that the beneficiaries entered the business quite unprepared for all that an entrepreneur activity demands. Training imparted was silent over the managerial aspect, over the availability of raw materials, their costs and marketing avenues etc. Possessing the entrepreneurial skills is only half of the requirement for success; the other environmental half would defeat any enterprising rural youth unless special care is taken Monitoring activity, in this case after care, was missing. None of the officials interviewed maintained the register called 'vikas patrika' showing the progress of the beneficiaries in climbing the trade ladder-reason, shortage of staff. Cases of callousness and inaction (the harassed enterprencur, the mislaid enterpreneur, the mistaken entrepreneur) on the part of the TRYSEM implementing agency in dealing with the potential entrepreneur have been mentioned too.

For the age and experience, the author has done a good job of evaluating as case studies the TRYSEM programmes. We hope that it will help the authorities concerned in revising the 'Guidelines' to improve the programme and achieve the obective laid down. The author has thoughtfully included also the 'Interview Schedule'.

S.M.Shah

(Contd. from Page 19)

— Weighted average is calculated for each group on information of total number of employees at each incremental stage and in each grade.

— Future number of employees is worked out on the basis of general promotion policy.

— Employee considerations include both direct and indirect benefits.

From the given supplementary statement regarding HR, one can make comparative analysis of ratios relating to HR and may be able to ascertain the increasing/decreasing trend in HR utility and reasons thereof.

In spite of various practical difficulties surfaced in implementation of HRA, its importance in the field of accountancy and management, a true and fair view of financial position and managerial decision regarding man power, need hardly any stress. The difficulties can certainly be overcome by expert professional research and thinkings in the years to come. □

O.P. Jagati, Deputy Manager, MMTC, Cuttack

(Contd. from page 23)

Pradesh showed that the cultivation of paddy on alkali soils under reclamation would be profitable on an average plot (yield 3.36 t/ha) if the irrigation charges were less than Rs. 18.39 per hour. The break-even yield was 2.86 t/ha. at the prevailing irrigation charges of Rs 12.0/ha. (Singh and Bajaj 1987). A pertinent question is the capacity of small and marginal farmers and *patta* holders with scattered holdings and limited resources to afford enough capital to install a tubewell. In this direction, public tubewells at reasonable irrigation charges may play an important role.

Demonstrations on farmers fields have yielded good results under Operational Research Project and Lab-to-Land Programme in Haryana and Punjab. The demonstrations witnessed multiplier effect and the technology was translated on the farmers fields at a rapid rate. Such efforts are yet to receive adequate attention in Uttar Pradesh. Farmers in this region are unaware about the technology making government efforts and subsidy. Large scale demonstrations of the technology on the farmers' fields will be useful in accelerating the process of reclamation.

Conclusion

The foregoing discussion revealed that reclamation of alkali soils has a positive bearing on agricultural development. The technology has a great potential to augment foodgrain production with the existing resources in the country. The annual foodgrain production could be increased from 6.5 to 8.8 million tonnes, depending upon the level of adoption of the technology. The other important benefits are of increasing on-farm income and employment opportunities in the rural areas for landless labourers, marginal and small farmers.

The need is to identify technical, socio-economic and instutional constraints and provide suitable measures to accelerate the pace of reclamation in the low adoption areas. However, the expansion of productivity through appropriate credit and irrigation price policy supplemented by improved agronomic practices should be encouraged, particularly in Haryana and Punjab.

Dr. P.K. Joshi, and N.T. Singh, are attached to the Central Soil Salinity Research Institute, Karnal.

Development Diary

President's assent to Hindu Succession Bill

The Hindu Succession Act has come into effect. The Act confers the same right on a Hindu daughter as a son has in a Hindu joint family. At present, daughters are not members of the coparcenary under the Hindu Mitakshara Law and, therefore, they are not entitled to claim participation in coparcenary property.

Assam retirement construction scheme approved

The Planning Commission has approved the construction of retirement from 61 km. of Brahmaputra Dyke to Jatiabari retirement of Brahmaputra Dyke in Assam at an estimated cost of about Rs. 2 crore. The scheme envisages protection to an area of 19,260 hectares and a population of 2,90,000. The proposed protected area comprises of 18,500 hectares of cultivable land, about 400 hectares of homestead land and 267 hectares of low-lying area. The construction of retirement from 61 km. of Brahmaputra Dyke (from Silghat to Dhing) to Jatiabari, retirement of Brahmaputra Dyke (from Dhing to Hilloikhunda) for a length of 13.025 meters is aligned on a shortest route suitably at safe distance from the river bank so as to avoid costly anti-erosion works.

India shares in ADB loans

Asian Development Bank's loans out of ordinary capital resources stood at US $ 19015 million on December 31, 1989. India's share from these loans was around 8.65 per cent amounting to US $ 1644.5 million.

The loans from Ordinary Capital Resources normally carry five years grace period and 25 years repayment period, and the variable lending rate of interest on these loans for the period from 1.1.90 to 30.6.90 is 6.33 per cent per annum.

As compared to India's share of 8.65 per cent, the borrowings of Indonesia stood at US $ 5219.150 million (27.45 per cent), the Republic of Korea at US $ 2319.63 million (12.20 per cent), Malaysia US $ 1529.338 million (8.04 per cent), Pakistan US$ 2352.320 million (12.37 per cent), the Philippines US $ 2967.44 million (15.60 per cent) and Thailand US $ 1831.00 million (9.63 per cent).

Sports goods exports doubled

After a prolonged spell of stagnation, exports of sports goods are poised to achieve a major Break-through. It touched a record level of Rs. 79 crore in 1989-90. This represents a doubling of exports. However, during the current year from April to December, exports are estimated at Rs. 39 crores compared to Rs. 26 crores in the corresponding period of 1988, indicating an increase of 50%.

India exports sports goods to more than 90 countries. However, over 70% of the export is to Republic of Germany (FRG). Majority of the units are in the small-scale sector. The Government has expressed its keeness to provide all support to the exporters in upgrading quality to meet international requirements. Two Process-cum-Product Development Centres have been set up at Meerut and Jalandhar to improve design and quality of product.

Plastics in Agriculture

The Government proposes to intensify the use of plastics in agriculture and allied fields. For this, 15 districts have been selected and these will be used as models for the neighbouring districts to adopt and propagate the use of plasticulture. It is hoped that the implimentation of such a programme will result in perceptible increase in agricultural production and saving of water. From macro angle, plasticulture can be used as a technique for increasing efficiency in water management in canal, reservoir lining, drip irrigation and sprinkler irrigation, fisheries, rural water supply schemes, substitution of wood in packaging for forest conservation, storage of foodgrains at farmers level, packaging of fresh flowers, fruits and vegetables and related items. It is generally agreed that plasticulture has great potential in India.

66 per cent increase in onion export

India exported 2,32,000 tonnes of onions between April 1989 and December 31, 1989. The export during the corresponding period of the previous year was was 1,39,519 tonnes, marking an increase of 66 per cent. The target fixed for the 1990 is three lakh tonnes. NAFED is the canalising Agency for the export of onions. The export is done under Open General Licence. Private trade is also permitted. Increased export of onion has benefited the growers considerably.

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Yojana : 33 years ago

(Apr. 7, 1957)

The session of Parliament that has just concluded will remain memorable for the impassioned defence of the Second Five Year Plan made by members of different political parties. It has now been made very clear that there is to be no compromise whatsoever either in the size of the Plan or in the time in which it is to be completed. This assurance came officially from the Minister of Planning, Shri Gulzarilal Nanda who said that there may be some changes made in the order in which some projects will be taken up and minor adjustments in the manner of spending but in neither case would the basis on which the Plan was made be altered. The assurance also came in the stirring words of the Finance Minister, Shri T.T. Krishnamachari: "We shall grimly hang on to the Plan . . . If we sink, we sink". When Shri K.C. Reddy intervened with, "we shall not sink", the Finance Minister went on to add, "No, we shall not sink. We propose to swim and take the Plan to the shores of safety."

What exactly is it that has put our Plan in jeopardy ? What is "the brink of a volcano" to which the Socialist leader Ashok Mehta made reference in his thought-provoking and brilliant speech ? At home, the cost of living has gone up because the prices of necessaries like food and cloth have risen ; we are not producing enough of either. We are also not selling enough of our goods to foreign countries to pay for the vast quantities of machinery we are buying to complete the industrial part of our programme. There is only one alternative before us. Either we produce more both for domestic consumption and the foreign markets or . . ."

Powr of persuation

This name, the people of Chuga Kalan will aways remember with gratitude and affection. To the small villages in the backward area of Bhatinda Community Development Block, his efforts brought new hope. Mahant Puran Dass taught the people, with the magic of his words and the force of his efforts a new way of life.

I still remember the humiliation I suffered when the Panchayat of Chuga Kalan flatly refused to consider my proposal to put up a building for the primary school. I tried persuasion, reason, and rhetoric. In fact, I tried all the "extension" methods, but far from inspiring them, could not even arouse their curiosity.

Then a miracle happened. A fortnight later, I was asked to meet the Panchayat at Dera Lung. That was where I met Mahant Puran Dass for the first time. He asked me in private whether I still wanted to have the High School built in Chuga Kalan. I told him I did.

Then he spoke to the villagers and it was a voice that carried conviction. He asked them how much expense it meant for their boys to go to Bhatinda to study. He asked whether the poorer among the parents could afford this. He spoke of Harijan Children. I could feel the people melting as they understood his point. He became more firm. He ended by saying that the coming generation would despise them for having failed to use the opportunities which would have moulded their lives along the right lines.

That did it. The Panchayat then and there began to plan how the school would go up. More than two-thirds is now complete.

When the teachers arived, there was no place to put them in. Mahant Puran Dass again organised the villagers to build a teachers' colony of which four quarters are complete. He collected money for a well, helped in the building of Community Halls, and assisted in countless projects of community uplift. He was awarded a community flag at a big mela but he still remains a modest, unassuming, soft-spoken man of God.

Gurkirpal Singh Bedi
B.D.O.

Nirupa Roy : I joined the films a little more than 10 years ago. At that time I was a shy young Gujarati girl who was quite overawed by her surroundings. I shall never forget the first role I played with so much reluctance and hesitancy. My uncertainty at the time was due partly to the fact that I was completely inexperienced and partly to the existing social environment.

Now, of course, things are totally different. In these 10 years the world and our own country with it have progressed with enormous speed. At any rate, the relationship between Indian society and the world of films has been completely revolutionised.

It is a significant fact that the Government has not neglected the film industry. This is particularly remarkable in view of the fact that the Government has many varied and difficult problems which need immediate solution. In recent years it has become increasingly clear that the views of the film stars are valued and their help and cooperation sought every now and then in the country's many cultural projects. This would have been impossible ten years ago.

yojana
• EXIM POLICY
• BUDGETS ANALYSES
• REGIONAL DEVELOPME
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Development Diary

Over Rs. 1100 Crores profit by Public Enterprises

One hundred seventy-eight Central Public Sector enterprises have earned an overall net profit of Rs. 1103.25 crores during the first half of 1989-90 as against a net profit of Rs. 694.19 crores earned by 179 enterprises during the first half year of 1988-89.These are the provisional estimates of performance of these enterprises for the first half of 1989-90 i.e from April 1,1989 to September 30, 1989.Based on the quick estimates, the overall profit of the public enterprises has increased by 58.9 per cent during the first half of current financial year compared to the corresponding period of previous year.

An analysis of oil sector vis-a-vis non-oil sector indicates that while the oil companies earned an overall net profit of Rs. 1,312.61 crores during the first half of the current financial year compared to a profit of Rs. 1,036.53 crores earned during corresponding period of the previous year, the non-oil companies reduced their losses from Rs. 342.34 crores during the first half of 1988-89 to Rs. 209.36 crores during the first half of 1989-90, thus showing improvement in profitability by Rs. 132.98 crores.

Among the non-oil sector, the sectors which have shown substantial improvement in profitability by either increasing the profits or reducing the losses are Minerals and Metals (Rs. 115.48 crores), coal (Rs. 102.71 crores), power (Rs.51.57 crores), transportation equipment (Rs. 38.09 crores), steel (Rs. 35.26 crores), and transportation services (Rs. 18.52 crores). Among the sectors which have shown deterioration in their profitability by either increasing their losses or reducing their profits during the first half of 1989-90 compared to the corresponding period of the previous year, the major ones are Chemicals and Fertilizers (Rs. 105.59 crores), Medium & Light Engineering (Rs. 73.47 crores), Telecommunication Services (Rs. 14.61 crores), Contract and Construction Services (Rs. 14.28 crores), and Textiles (Rs. 10.77 crores).

Rice procurement record

The Food Corporation of India and the S[illegible] agencies have touched the all-time reco[illegible] rice procurement during the current mark[illegible] season of 1989-90. About 98.95 lakh tonn[illegible] rice were procured as on March 9, 1990 ag[illegible] the earlier record procurement of 98.76 [illegible] tonnes during 1985-86 season. The cur[illegible] marketing season ends on September 30, [illegible] and it is hoped that the target of 100 [illegible] tonnes of rice procurement would be surpa[illegible] The procurement is expected to be around [illegible] lakh tonnes.

The record rice procurement during t[illegible] current marketing season will enable t[illegible] government to meet the reasonable deman[illegible] of the Public Distribution System (PDS) a[illegible] also to replenish the buffer stocks of ri[illegible] which were depleted due to lower procureme[illegible] and higher releases for the PDS. Punj[illegible] contributed 47.84 lakh tonnes of rice to t[illegible] Central pool. The share of Uttar Prades[illegible] Haryana and Andhra Pradesh to the Centr[illegible] pool is 14.11 lakh tonnes, 9.39 lakh tonnes a[illegible] 13.59 lakh tonnes *respectively.*

The higher procurement this year may [illegible] attributed to the record arrivals of paddy in t[illegible] surplus states of Punjab and Haryana, increa[illegible] in procurment prices of paddy and overa[illegible] easy availability of rice in the open market.

Action Plan for Aquaculture

The Department of Ocean Development ha[illegible] drawn up an action plan to review its Scienc[illegible] and Technology programmes to provid[illegible] emphasis especially in the area of povert[illegible] alleviation and improvement of quality of li[illegible] in rural areas.

A demonstration project of technologicall[illegible] feasible and commercially viable semi-intensi[illegible] prawn farming with the application [illegible] biotechnology has been approved at Paradi[illegible] Orissa. The Project is being implemented b[illegible] the Department of Biotechnology.

A Demonstration Farm for intensive c[illegible] culture for achieving 25 tonnes/hectare a y[illegible] is being established in Orissa. This project [illegible] also been approved and is being implemen[illegible] by the Department of Biotechnology. An R[illegible] cum Demonstration Centre for prawn cultivat[illegible] will be funded by the Department of Oc[illegible] *Development.* The project would cost rup[illegible] one crore during 1990-91.

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[illegible]

K.R. Sudaman

THE NEW IMPORT-EXPORT Policy announced recetly is designed with a view to the country's difficult balance of payments position To be valid for three years, the new policy has responded to the need for boosting exports as well as for curbing inessential imprts so as to improve the country's foreign exchange earnings.

No wonder trade and industry circless have welcomed the new policy. It has been described as liberal and pragmatic as it bids fair to tackle the critical balance of payments position.

A constructive feature of the policy is that it has cut down procedural irritants for stepping up exports by pursuing a policy of trust. At the same time the policy leaves very little room for misuse. The announcement of the policy redeems a promise made by the National Front Government before the Lok Sabha elections last year. As Union Commerce Minister, Mr. Arun Nehru says, the policy also aims to support employment oriented schemes.

The policy has several new features. It has rationalised, simplified and provided flexibility and transferability in the replenishment Licence Scheme, better known as RLP scheme. It seeks to give more impetus to higher domestic value addition in export products.The policy has introduced blanket Advance Licensing Scheme, for the first time, to allow duty free import by exporters. It also envisages to widen the open General Licence OGL list.

The policy will also encourage exports by the Service Sector. It has abolished the pass book scheme introduced in 1986 which could be easily manipulated to import non-essential items.

The policy to remain valid till 31 March, 1993 also seeks to ease licensing controls on actual user exporters. It introduces automatic licensing scheme to make possible faster access to raw materials and components for the industrial units of the country.

New dimensions

The star trading house status granted to large exporters who earn at least 75 crore rupees in foreign exchange in a year will facilitate their global marketing. Apart from simplifyign and streamlining procedures for import-licensing and exports promotion, the policy is expected to bring a bout major qualitative changes by emphasizing higher value addition liberalizing import of capital goods.

The Commerce Ministry has also initiated a number of other measures like facilities for Research and Development units, import of machinery and equipment required for projects against global competitive bidding, adhoc licences for a value of five per cent of the F.O.B. value of exports The actual users of the new policy will find it very much simple and rational.

Decentralisation of some industrial raw materials increase in the value limit for import of spares and tools are other features of the policy which will help smoothen the production flow The policy has provided for a grievances redress mechanism for actual users and exporters.

The policy envisages open house in various cities to promote greater interaction and ensure fuller adaptability of the policy. It has for the first time also given recognition to the important role played by the services in fetching export earnings for the country Service exports are software, computer consultancy service and management consultancy services These will earn benefits under the new policy, as these will be entitled for replenishment licence at the rate of ten per cent of the net foreign exchange earning.

The new EXIM policy will also contribute to widening the capital base of exporters by allowing import of capital goods against their own earned R E.P. Licences It has included 82 items in the OGL list to liberalise capital goods. It has, however, taken 17 items out of the list as they are domestically available and are of good quality. To ward off obsolete technology, second hand machinery which is older than seven years and has less than five years of residual life will not be allowed to be imported. Under the policy public undetakings will be allowed for the first time to import raw materials, components and capital goods under Open General Licence.

Recognising the vast potential of exports of gem and jewellery, enough scope. has been given to their exporters. This much for the new Import Policy

(Contd. on page 13)

The Union Budget for 1990-91 and Development perspective

Raja J. Chelliah

THE UNION BUDGET FOR 1985-86 presented by then Finance Minister Mr V P. Singh opened a new era in economic policy The changes in policy initiated then and carried forward subsequently yielded tangible benefits in terms of fast industrial growth, drive towards modernisation and high overall rate of growth of the economy It is gratifying that a major signal conveyed by the first budget of the National Front government is that it would not only not reverse the process of liberalisation, but would in fact carry it forward. The Finance Minister has categorically stated that "our economic policies will place greater stress on general, non-discretionary fiscal and financial instruments and will reduce the role of ad hoc discretionary physical controls". Such a clear statement and a number of measures proposed in the budget, which I shall deal with below, have allayed fears entertained in many quarters that there might be a move back to a controlled regime But a more liberal regime is to be combined with a new strategy of development laying greater stress on employment generation, agricultural growth and rural development. Such a re-orientation is desirable, but an effective change in strategy would call for corresponding changes in the system of planning and investment priorities.

The Finance Minister has pointed out that exports must command the highest priority and has assured the nation that the new Import Export Policy for 1990-93 to be announced soon will be designed to boost exports and to encourage exports with high net foreign exchange earnings. The new Import Export Policy has now been announced and contains many welcome features leading to a more rational regime conducive to growth of export It is the intention of the government to streamline industrial policy so as to make possible higher export performance Thus it is clear that the new government is convinced that higher imports would be needed and hence continuing higher exports are of the greatest importance. For this purpose industries in general have to be made internationally competitive

Thorough [illegible]

A major exercise carried out in the budget is a thorogh going reform of the system of corporate profits tax The changes in the structure of the tax, while yielding higher revenues, will serve to improve compliance and directly offer a lower rate of tax on the return on corporate investment, without distorting choices of businesses as between different industries and different techniques of production The lower rate will also be more attractive to foreign investors. Trade and Industry, as also the Stock Market, have welcomed the budget proposals in this regard. Alongside, this major step in tax reform, the Finance Minister has reduced the rate of import duty on capital goods to 25 per cent (upto specified values) against export obligation Furthermore, the 'concessional' customs duty of 40 per cent has been extended to serveral items of machinery used in industries with export thrust or employment potential The growth of industries, the capital market and export, will receive a definite fillip as a result of these budget proposals

The continuance of support to industries and exports is to be supplemented by a more pronounced stress on agriculture and rural development The importance of agriculture and rural development has been recognised in the earlier Plans also In the Seventh Plan, the outlay on rural development was considerably increased. What is of significance in the new thinking is the recognition that the diffusion of the fruits of development should be brought about through policy-directed creation of wide-spread employment Employment would then become the focus of development planning The strategy of development which would give primary or very high weight to the employment goal will have to be significantly different from the traditional modified Mahalanobian strategy under which the public sector devotes a large proportion of the resources it could command to industry, transport and power and a sizeable proportion of investment in the economy goes to highly capital-intensive industries with low employment potential. If employment is to grow faster, (a) government should divest itself of a substantial part of the responsibility for industry and power so that it would have adequate resources for investment in agriculture and rural development and (b) construction (housing, roads, schools, etc.) and

light industries should be given much greater share in total investment. These changes would require a considerable shift in Plan investment which has not been possible so far because many intellectuals were loath to give up the old strategy and officials in different Ministries resisted any cut in their relative shares of investment and any diminution in the importance of their respective industries/undertaking within the public sector. I believe that unless several public enterprises are asked to raise a good part of the resources needed for their investment on a commercial basis from outside the budget and unless the government shifts to private sector at least Rs 15,000 to 20,000 crores of investment in the energy sector, it will simply not be possible to bring about any worthwile change in the pattern of public sector Plan outlay; only lip-service would be paid to rapid employment generation as a goal. It was naturally difficult for the previous government to make a departure from the traditional strategy and the established patterns of investment. In fact, many within the Establishment were opposed to liberalising measures introduced by Mr. V.P. Singh in 1985-87, as the then Finance Minister. But the new government does not suffer from the disadvantage of having to show loyalty to old ways and old policies

It appears that the government would, on the one hand, strive to make the organs of government more accountable, more responsible and more responsive to the people who they are designed to serve and on the other, re-orient policies to create a cleaner atmosphere with conditions conducive for the observance of laws The aim is to make economic laws more reasonable and more simple There is no point in keeping on the Statute Book laws which cannot in practice be enforced The decision to repeal the Gold Control Act is welcome. Another area where the government is adopting a realistic and pragmatic attitude is the problem of black economy The Finance Minister recognizes that black money is generated not only by tax evasion, which is rampant, but also "by shortages, artifically pegged prices and detailed physical controls" As regards tax evasion, the Finance Minister proposes to improve compliance by combining reasonable tax rates and simpler tax laws with effective tax administration and strong deterrents against evasion Here we must recognize that the moral standards of our tax administration have deteriorated along with the moral standards of the taxpayers. No strong deterrent can now be expected to be used with success unless the rates are such that collusion between the taxpayer and the tax collector at the expense of State is not very profitable to either or at least one of them

I would suggest that the personal income tax should be reformed along the lines of the corporate profits tax, with the majority of taxpayers being subject only to a marginal tax rate of 30 per cent. Many exemptions under the wealth tax could similarly be removed and the marginal rate brought down to on per cent. At the same time, the States should be aske to bring down the rates of stamp duty substantiall and to lay down minimum values for propertie These proposals might be opposed by those wh apprehend that their adoption would bring down th revenue from direct taxes. On the contrary, ther would be a substantial rise in revenues because c both better compliance and faster growth of the base

The degree of success which the government ca achieve in accomplishing the many good things i proposes to do and the healthy growth of th economy would depend crucially on whether inflatio is kept down and macro economic stability is achieve without much delay. The indirect tax hikes an increases in administered prices would naturall result in higher prices in many sectors of th economy so that there would be rise in the genera price index. This price rise would spiral and result i inflation if excess demand should be created throug a large budget deficit. The existing monetary an budgetary situation is far from satisfactory an resolute action would have to be taken to keep th overall budgetary deficit down to the promised R 7000 crores. In this connection, one shoul compliment the Prime Minister and the Financ Minister on their willingness to come befor Parliament every four months to discuss the budgetar situation. During the periodic reviews, if it is foun necessary, the government should be willing to cu expenditures to dampen inflation. □

Raja J. Chelliah, Professor Emeritus, Nationa Institute of Public Finance and Policy, New Delhi

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G.D.P. Growth

As per quick estimates of Central Statistica Organisation, the GDP growth during the first fou years of the Seventh Five Year Plan for which data ar avilable are: 1985-86-4.9, 1986-87-4 2 1987-88-4.1, 1988 89-10.4 per cent.

New Jute Mill for Orissa

The Government has granted a licence fo establishment of a jute mill at the Kendrapada i Cuttack district of Orissa, This jute mill will produc 14,000 tonnes of jute items such as blended yarns floor covering, jute blended carpets etc. Estimate total cost of the project is Rs. 20 crore and it will be set up in the Joint Sector The construction of the uni will begin after the financial package prepared by th Industrial Credit and Investment Corporation o India is sanctioned by Board for Industrial an Financial Reconstruction, and after the funds ar released by the financial institutions.

S. Sethu Raman

THE FIRST BUDGET OF the National Front Government presented to Parliament by the Finance Minister Professor Madhu Dandavate, provides a thrust for programmes designed to create employment and give a fair deal to the poor and deprived sections of society in line with the ruling party's election manifesto. The budget for 1990-91, first year of the Eighth Plan, takes care of the commitment to allocate fifty per cent of the investible resources for agriculture and rural development and sets apart one thousand crore rupees for the promised debt-relief to small farmers, artisans and weavers. Faced with a grave fiscal situtiom and difficult balance of payment position, the Finance Minister has predictably gone for a massive dose of taxation designed to net 1,787 crore rupees. Together with another 172 crore rupees by way of revision of postal tariff, except for Post Cards and registered news papers, the overall deficit in the coming year has been kept down at 7,206 crore rupees However, there is still a disturbingly large gap between current revenues and expenditure, which is at the base of the fiscal crisis inherited by the National Front Government. Given the imperatives of the new development shifts, Professor Dandavate could not have gone too far in controlling the expenditure growth, though he has expressed his government's determination to spare no effort to reduce the burden of administrative expenditure and also to go through a period of austerity and hardship in order to avoid excessive foreign borrowings.

Bulk of the resource mobilisation effort is confined to two areas-Petroleum products and corporate sector A steep hike in petroleum products prices, other than Kerosene and L.P.G. for domestic use, is designed to yield eight hundred and thirty six crore rupees. The corporate tax reforms proposed in the budget will yield an additional revenue of eight hundred crore rupees.

While fixing the tax rate for companies in which the public are substantially interested at 40 per cent as the corporate sector desired, the Finance Minister has done away with the investment allowance and investment deposit account. These incentives accoding to him were being used by many profit making companies to go out of the tax-net. With the abolition of the two escape routes, the Finance Minister is discontinuing the controversial tax on minimum profits which was 30 per cent of the book value of profits, introduced in the 1987-88 budget. At the same time, to encourage investment activity the Finance Minister has proposed an important change in the taxation of inter-corporate dividends which would be welcome to the corporate sector For the lower and middle income groups, as promised in the manifesto, the Finance Minister has given relief by raising the tax exemption limit from eighteen thousand rupees to twenty-two thousand rupees. This will put 10 lakh persons out of the tax-net, while those with income limit upto thirty thousand rupees will get tax reductions ranging from two hundred rupees to thirteen hundred rupees. This concession will cost the exchequer two hundred and fifty crore rupees.

In the field of indirect taxes, the Finance Minister has given a series of exemptions for duty reductions under both Excise and Customs which are mainly intended to benefit the small scale sector and agriculture and help environmental protection. Items fully exempted from excise duty include vegetable oils, like refined rape seed and mustard oil, certain life saving drugs, hand-made paper, packaging material for horticulture products, molasses, and dry cell batteries. Goods upto a value of 20 lakh rupees produced in the small scale sector have also been exempted from duty. Concessions in import duty cover pesticides, marine products, machinery and equipment for food processing and dairy, drug intermediates, homoeopathic medicines and newsprint.

In the capital goods sector, which has a large share in the country's import bill, the Finance Minister has announced that facility will be available for registered manufacturers/exporters to import capital goods at a concessional rate of duty against export obligation. Excise duty concessions have also been given to indigenous capital goods sector and pollution control equipment while feature films have been fully exempted.

The Finance Minister has relied on man-made fibres and yarn, cigarettes, motor vehicles, Iron and Steel, tyres, plastics and a range of luxury consumer items like micro-oven, sophisticated audio systems, VCRs, electronic games, and high priced cooking ranges. The Centre would realise two hundred and seventeen crore rupees through excise duty modifications while states would get 173 crore rupees as their share.

The revision of prices of petroleum products taken with the earlier increase in railway freight, and duty changes on some of the basic goods and intermediates is likely to have an inflationary impact Professor Dandavate, who expressed concern over the price situation, has voiced Government's determination to be vigilant and see that the deficit fixed at lower level is not exceeded. Periodical review of budgetary developments would be made and Parliament would be kept informed of the performance in relation to the deficit, he said. In defence of his revenue raising measures, the Finance Minister said all that he has attempted is to take some resources from the rich and use them to give certain relief to the poor and the common man He asserted that the process of restraining the budget deficit has begun and the balance of planning and investment has been tilted towards rural areas and employment creation

Announcements

The Finance Minister's budget speech contained a series of announcements which should help to clarify the National Front Government's economic policies He said top priority would be given to exports and it would be reflected in the industrial policy He hinted at fiscal measures later in the year to promote export production. He also announced the long awaited abolition of the Gold Control Act which, he said, would benefit many artisans and small goldsmiths all over the country. Though the Finance Minsiter did not come up with any immediate measures to attack the problem of black money, he welcomed a debate on whether a scheme to permit undeclared incomes and hidden wealth to be used for social purposes like slum clearance, house construction or setting up of agro-based industries in rural or backward areas should be tried out with a flat rate of tax on such income. Meanwhile he promised that government would come with a heavy hand on vulgar display of ill-gotten wealth.

While the Budget provides for a step up for rural development the Finance Minister said, additional funds would be provided to make a beginning on an Employment Guarantee scheme in selected areas during the course of the year While the employment oriented growth strategy on a long term basis is being formulated, it has been decided to go ahead with a comprehensive vocational training project covering 28 States and Union Territories to provide opportunities for the youth to acquire the skills that would equip them for gainful employment On industrial policy, Professor Dandavate has underlined the Government's approach for accelerating growth in a competitive and non monopolistic environment The industrial licensing policy is to be reviewed to ensure that licensing does not become an instrument for preventing competition and perpetuating monopolies, he said

The Finance Minister also referred to the role of capital market and public financial institutions and made it clear that the institutions which would be given functional autonomy would not be a party t corporate battles and secret takeovers but woul play a stabilising role in the market

Ills & [illegible]

The Central plan outlay for 1990-91 has been significantly stepped up from over 35,000 crore rupees in the current year to 39,329 crore rupees, bu this is dependent on financing to the extent of aroun 62 per cent by public enterprises through interna resources and bonds. This is an assumption which could go wrong. As widely expected, the Budge provides for an increase in defence spending nex year, 15,750 crore rupees as against 14,500 crores in the current year. However, defence expenditur remains at 14 per cent of total expenditure in 1989-90 Professor Dandavate pointed out that the increase in defence expenditure was not of our choice but was the direct result of the situation on the count. borders. There will be a significant rise Government's market borrowings from 7,400 cror rupees in the current year to 8,000 crore rupees in 1990-91. Otherwise government's tax effort woul have been still higher.

External receipts through new loan commitment and drawal of aid in the pipeline are also estimated t be higher at 4,327 crore rupees next year. On the non plan side, interest payments continue to be th largest single item accounting for over 20,800 cror rupees or 18 per cent of total government expenditure

Thus, overall the budget still reflects disquietin trends on the fiscal front which of course are no amenable to quick solution Conscious of this factor the Finance Minister presented his budget as a shor term device to move steadily towards the long ter objective of ensuring growth with equity and sel reliance Despite the bold tax effort, the growin expectations and needs of development would ca for new and innovative ways of raising addition resources if the planned economic development t which the government is committed is to becom really meaningful to the people. Restoration of fisc balance will remain a long term process.

Debt relief & credibility

The setting apart of one thousand crore rupees a debt relief has constrained the resource availabilit for a bigger thrust for development that would hav been expected in the budget. While regarding th debt relief measure as a positive step which woul enable farmers to increase their productivity an hoping that the scheme would contribute to bette agricultural recoveries, Prof. Dandavate has made clear that the scheme would not be extended o repeated. For in such matters what is at stake is th credibility of the banking system, as the Financ Minister himself admits.

The National Front Government attaches greate importance to faster growth of agriculture not only i terms of higher production and diversification bu

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G.S. Khosla

WHILE PRESENTING THE Railway Budget for 1990-91 on 14 March 1990 in Lok Sabha, Mr George Fernandes, the Minister for Railways appropriately reviewed the performance of IR in the Seventh Plan He observed that the main thrust of the Seventh Plan was in the areas of the rehabilitation of assets, modernisation, optimal utilisation of resources for greater economy and productivity and thus maintaining the financial health of the system These objectives, though in a language somewhat vague, would be the aims of a railway network required to serve a developing country whose economy has suffered from the constraint of resources While the size of the Eighth Plan is yet to be determined, its objectives are more or less the same as those of the Seventh Plan To quote from the Railway Minister's speech, "The Eighth Plan document of the Railways envisages modernisation and technological upgradation of the system to achieve reduction in maintenance cost, gain in safety, energy conservation, manpower planning, and human resource development, reliability and quality of service, and above all customer satisfaction

A serious difficulty faced by the Ministry of Railways in the formulation of its objectives for the successive five-year plans in more concrete terms has been the uncertainty caused by the progressive deterioration in IR's share of the national cake That is so because IR, unable to sustain itself, in respect of both its revenue and capital expenditure, is dependent on the General Exchequer for financial support, which has been coming down over the years. This unhappy situation was summed up by the Minister in the following words, "A review of Plan investments in the past would indicate that outlay on the railway sector, which as a percentage of the total Plan outlay, was at the level of 15 5 per cent to 11.1 per cent in the first three plans, came down to as low as 6.9 per cent to 5 2 per cent in the next four plans upto the Seventh Plan "

The following table showing the total outlay for the plans as a whole, the share of the transport sector and that of the Railways represents the picture graphically

It may be added here that the provision of Rs 12,334 crores for the Seventh Plan was revised to Rs 16,715 crores at the time of the mid-term appraisal

While budgetary support had been tapering off, Mr Feranades had maintained in the Status Paper issued by him ten days before the presentation of the Budget that it made little difference whether the Railways raised its tariffs or the budgetary support was increased-for the Finance Ministry would raise funds only through taxation-it was the people who would be paying, in one form or the other. One may differ from Mr Fernandes's view that it made little difference While in the case of the budgetary support the entire tax paying community pays, in the case of an increase of the railway tariffs, the impact is felt only by the users of the railway services. And that is how it should be.

[illegible] track

In view of the dwindling share of the Railways in the total plan outlay of the country, IR has had to increase over the years its passenger fares and freight charges and Mr George Fernandes could not deviate from that course. Such a measure to meet the rising costs of railway operations and development is not unprecedented. The Railways revised their fares and freight every year between 1980-81 and 1983-84;no revision was made in freight rates in 1984-85 and on fares a nominal surcharge was imposed. The effect of these revisions meant that the passenger rate per passenger kilometre was increased from 3 72 paise in 1979-80 to 6 79 paise in 1984-85 and the average per tonne kilometre increased from 9.64 paise to 21.39 paise over the same period, that is an increase of 82.5 per cent and 122.18 per cent respectively.

In 1985-86 passenger fares were increased by 12.5 per cent and so were the charges for monthly season tickets Freight charges were also increased by 10 per cent and charges for low-rated commodities were increased by re-classification In 1986-87, fares of AC first, 1st ordinary, chair cars and AC 2-tier sleeper were raised by 12.5 per cent and further the surcharge for travel by AC 2-tier sleeper was raised

In 1987-88, there was no increase in railway charges due to a surplus budget. In 1989-90 again, goods freight was increased by 11 per cent and by reclassification, as in 1985-86, the tariffs of low-rated commodities were raised. The rates for parcels and luggage were also raised by 11 per cent There was no increase in passenger fares. That possibly was the justification for Mr Fernandes to hike the fares of higher classes, ie AC 1st,AC sleeper, ordinary 1st and AC chair-car by 17 per cent.

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The Railway Minister had originally proposed that the fares of second class mail and express trains will be increased by Re 1 at the lowest slab, progressively rising to a maximum of Rs 20 for distances beyond 1,400 kilometres The fares of ordinary second class will be increased to 50 paise at the lowest slab, rising to a maximum of Rs. 4 for distances beyond 300 kilometres. The price of a platform ticket will be raised to Rs. 2. For second class monthly season tickets, increase in fares will vary from Rs. 4 to Rs. 12

V/S

Total Transport sector in various Plans

(In crores of rupees)

	First Plan 1951-56	*Second Plan 1956-61*	*Third Plan 1961-66*	*Fourth Plan 1969-74*	*Fifth Plan 1974-78*	*Sixth Plan 1980-85*	*Seventh Plan 1985-90*
1 Railways	217	723	1,326	934 @	1,523*	6,585	12,334 3$
2 Transport as a whole	434	1,100	1,983	2,522	4,078	12,412	22,971
3 Total Plan Outlay	1,960	4,672	8,577	15,779	28,991	97,500	1,80,000
4 Expenditure on transport sector as a percentage of total plan	22 1	23 5	23 1	16.1	14 1	12 7	12.8
5 Expenditure on Railways as a percentage of total plan expenditure	11 05	15 43	15 45	5 92	5 97	5 2.3	6 9
6 Expenditure on Railways as a percentage of Total Transport Expenditure	50	65 72	66 86	37 03	37 34	53 05	53 69

@ The figures of Railway's Plan outlay from the Fourth Plan onwards are inclusive of outlays for M.T P.

* The figures of Railways' Plan outlay from the Fifth Plan onwards are inclusive of outlays financed from Depreciation Reserve Fund

$ Original Seventh Plan figures

per month according to the distance. The increase in first class monthly season tickets was to range from Rs. 16 to Rs. 48. The sleeper surcharge in second class will be raised from Rs. 10 to Rs. 15 for distances upto 500 kilometres, from Rs 15 to Rs. 20 for distances from 501 kilometres to 1,000 kilometres. and from Rs. 15 to Rs. 25 for distances beyond 1,000 kilometres.

Freight rates are to go up by ten per cent except from 1st April to 30th September when the increase will be seven per cent. Rates for parcels and luggage will also go up by ten per cent. There were protests in both the Houses against these levies, in response to which the Minister relented and announced some minor concessions, of which the most significant was that the price of a platform ticket will stay at Rs. 1 50 as against Rs. 2 proposed earlier; no hike for second class upto 25 km; for journeys of over 1,000 km, the maximum increase in second class fare reduced to Rs. 15 instead of Rs. 25; the rise in suburban second class monthly season ticket to range from Rs. 3 to Rs. 9 instead of Rs. 4 to Rs. 12 and the increase in the first class suburban to range from Rs. 12 to Rs. 36 instead of Rs. 16 to Rs. 48.

The original levies would have brought IR additional income to the extent of Rs. 892 crores and the concessions will reduce it by a mere Rs. 45 crores. The conditions on the railway platforms at the time of the departure and arrival of mail and express trains are so chaotic due to the influx of non-travelling visitors that keeping the price of a platform ticket at Rs. 2 would have reduced overcrowding to some extent. As an alternative, a differential method of charging, could have been introduced, Rs. 3 at large stations and Rs. 1.50 at small stations. In regard to the hike on journeys of upto 25 kilometres will worsen the congestion in long distance fast trains approaching terminals as railways have not yet found any effective means of preventing commuters from barging in. Generally, an incrase in passenger fares may prove deflationary as it will leave less cash in people's hands.

Any discussion of the Railway Budget 1990-91, the first year of the Eighth Plan vis-a-vis the Eighth Plan itself will not be complate without taking note of the Status Paper on Railways.

Options

The paper discusses a number of issues: technology upgradation, financial arrangements, capital restructuring, tariff policy, passenger and freight services, expansion of the network etc. It is not possible to discuss all these issues and the available options in the course of a short article. We shall therefore discuss the issue of railway expansion which has always been highly controversial and politically explosive. The problem has always been how to meet numerous demands with scarce resources. The priorities are well known. The highest priority has to be given to lines required to serve projects such as fertiliser plants and steel mills. Next will be strategic lines required for the country's security. In the third category will fall missing links which can form alternative routes to ease the congestion on saturated routes. And the fourth will

(Contd. on page 13)

The Railway Budget, 1990-91

Arabinda Ghose

CONCLUDING HIS HOUR-LONG speech while presenting the Railway budget for 1990-91 in the Lok Sabha on March 14, the Minister in charge of the country's largest public underaking George Fernandes said: "As the head of the vast family of railwaymen, I pledge on their behalf, that we shall march forward with total commitment and dedication towards achieving the corporate goal of meeting the growing traffic needs of the country, at least cost to the society, while at the same time maintaining the financial viability of the system"

This one sentence summarises, to my mind, the entire philosophy behind the drawing up the railway budget not only for this year, but also during the years in the past and—unless the railways undertake revolutionary changes in its structure, particularly its capital structure— the years ahead The Railways have the mandate to meet the growing traffic needs of the country, both passengers and freight, without taxing the society excessively and yet not to run a losing concern

In fact, it is this concern for not making the Railways just another public sector undertaking that merrily loses money that successive Railway Ministers have been taking recourse to hikes in passenger fares and freight rates from time to time For the Ministers, it is a painful duty to add further burden to the people, whether passengers or not, but if costs go up in all sectors of economy, the Railways cannot be an isolated example of static freight rates and passenger fares, because that will make the undertaking another sick industry

Mr Fernandes has raised the passenger fares by 17 per cent flat for upper classes of travel including air-conditioned chair cars. For second class travel, the hikes are a little complicated The fares for second class ordinary have been raised by 50 paise at the lowest level rising to a maximum of Rs 4 for distances beyond 300 kilometres. For second class mail and express travel, the increase will be Re. 1 at the lowest slab, rising to a maximum of Rs 20 for distances beyond 1400 kms However, replying to the debate on the Railway budget on March 26, the Minister said that there would be no increase in fares for second class upto a distance of 25 kilometres, while the maximum fare increase for second class mail and express travel, has been reduced to Rs. 15 from Rs. 20.

Along with this, the sleeper charges in second class mail and express trains have also gone up. It will be raised from Rs 10 to Rs. 15 upto 500 kilometres, from Rs 15 to Rs 20 for distances between 501 kilometres and 1000 kilometres and from Rs 15 to Rs 25 for distances beyond 1000 kilometres.

Although platform tickets were to have cost Rs. 2 each, the Minister subsequently declared that it would continue to cost Rs. 1 50 each

Because of the 17 per cent increase in the fares of the upper classes, the Rajdhani Express and the Shatabdi Express fares too will go up accordingly. For example, the New Delhi-Bombay Central A.C. Bombay Central A C. Chair car fare will go up from Rs 350 to Rs 410, and that between New Delhi and Howrah will be increased from Rs. 355 to Rs. 420. The A.C. First Class Fares between New Delhi on the one hand and Bombay Central and Howrah on the other will be Rs. 1,460 and Rs. 1,490 respectively, exceeding the air fares now (Indian Airlines, however, are likely to raise the air fares soon)

For the five million passengers using the suburban services in the metropolitan cities of Bombay, Calcutta, Madras and Delhi, the monthly season ticket rates will be increased by Rs. 3 to Rs. 9 in case of second class, and by Rs 12 to Rs. 36 in case of first class

The freight rates have been hiked by a flat 10 per cent except for certain items like foodgrains, pulses, salt for human consumption, edible oils, fruits and vegetables, gur and jaggery. A novel feature of the increase is that they will rise by only seven per cent between April and September, when the offerings of traffic are rather slack, and then full 10 per cent during October and March, the "busy season".

The new freight rates will come into force from April 1, while the passenger hikes will apply from May 1.

Surplus or illusion

The cumulative effect of the increase in fares and freight rates will be an additional income of Rs. 892 crores, from which one has to deduct Rs. 45 crores which Mr. Fernandes said would be the revenue losses on account of the concessions he announced. in response to appeals by Members of Parliament participating in the Railway budget debate. This will

We shall see later that this "surplus" is really an illusory term.

With these increases, the Railways expect a total gross traffic receipt of Rs. 12,060 crores. Ordinary working expenses will be Rs 4,241 crores, leaving a balance of Rs. 3,819 crores. However, this amount is *not a profit or a surplus. For, the Railways have to* meet various other obligations out of this sum. The first is the Depreciation Reserve Fund (DRF) for which Rs. 1,950 crores have to be appropriated. This fund looks *after the renewal and rehabilitation of* railway assets. As much as Rs 900 crores have to be set apart for the Pension Fund, as the number of pensioners is increasing along with the rates Thus the total working expenses come to Rs 11,091 crores, leaving what is called net traffic receipt of Rs 969 crores.

However, the Railways also earn some more money from miscellaneous sources, which is estimated to be of the order of Rs. 149 crores this year. This will raise the net railway revenue to Rs. 1,118 crores.

This amount will be utilised to pay to the General Revenues of the Union Government Rs 932 crores this year in the form of "dividend", or if one may use a less glorified term, interest on the capital the Central Government provides to the Railways for its plan expenditures. The remaining Rs. 186 crores (less Rs. 45 crores) is the "surplus", which however is appropriated to the Development Fund in its entirety. This fund looks after certain works on which the Railways do not earn any return—a station building for example, and certain passenger amenities work.

Whatever has been stated above is in respect of the revenue budget only. The capital, or plan budget for the Railways this year is Rs 5,000 crores Out of this amount, the Railways have to mobilise from the market as much as Rs. 1,170 crores. A separate public sector undertaking, the Indian Railways Finance Corporation (IRFC), looks after market borrowings The funds so raised are utilised for procuring rolling stock like wagons and locomotives, which then are leased to the Railways. The Railways on their part pay leasing charges to IRFC

Another feature of the plan expenditure is that the Railways are progressively bearing higher and higher percentage of the plan expenditures from out of their internal resources. To that extent, the dependence on the General Revenues is gradually decreasing This year, the Railways will receive only Rs 1,420 crores from the Centre for their plan expenditure, which is only 28.4 per cent of the. toal plan expenditure of Rs. 5,000 crores. At one time, This amount used to be about 75 per cent

One distinct feature of the budget, not generally known or understood by the people at large, is the capacity of the system to absorb quite a large percentage of increase in expenditure through internal economy and efficiency in operation. For example, this year, the total additional increase in expenditure is of the order of Rs. 1,318 crores This includes salaries, dearness allowances, bonus, cost of fuel and higher allocation for pension and depreciation reserve funds. Yet only Rs. 892 crores (minus Rs. 45 crores) of additional revenue is being mopped up. The remaining Rs. 471 crores are being absorbed by the system, no mean achievement for an undertaking run departmentally.

The travelling public and their representatives in Parliament expect that the Railway budget will include proposals for not only new trains, but also new lines Almost every Member presses for inclusion of a new line in his or her constituency, and if a line is not possible, at least a survey for a new line In this, Mr Fernandes has struck a very pragmatic note. He said hundreds of crores of rupees are blocked in a large number of new line projects, which do not yield any revenue Why not complete some of the more important lines expeditiously so that the capital invested in them start paying returns ?

Apart from this, he has taken steps for actively getting the State Governments involved in raising finances for urgently-needed new lines. This is an extension of the concept formulated by his predecessor Mr. Madhavarao Scindia However, during Mr. Scindia's time, State Government participation was solicited for intra-urban or suburban lines, for example the Mankhurd-Belapur line in Bombay for which the Maharashtra Government has agreed to bear 66 per cent of the cost.

Mr Fernandes has taken forward this concept towards financing the biggest railway project undertaken in Independent India, the Konkan Railway. This line will connect Bombay with Mangalore, passing through the abysmally under-developed areas of Konkan, the coastal strip in Maharashtra between the Western Ghats and the Arabian sea. The 837 kilometre long line between Mangalore and Roha (Roha-Bombay VT is already existing) is now estimated to cost Rs. 969 crores, and the Minister proposes to complete this stupendous task in just five years

The *same philosophy is being applied to the* Kandla-Bhatinda line in north-western India, aimed at carrying among other things, petroleum products from the port of Kandla to the consumption centres in north-west India. *This line will involve mainly gauge* conversions but some new stretches too will have to be constructed. The Rajasthan and the Gujarat Governments have reacted favourably to the concept of State Government participation in the construction, according to the Minister.

Although the 1990-91 budget provides for only one new electrification project-- Patratuto Son Nagar in Eastern Railway—one of the most exciting event in railway electrification will take place during this year The Nagpur-Itarsi section is expected to be fully

electrified by the end of 1990. This will result in the entire stretch of 2198 kilometres between Delhi and Madras being electrified (other sectors are already electrified) by then, so that the Tamil Nadu Express and the Grand Trunk Express among other trains will be hauled all the way from New Delhi to Madras Central by electric locomotives This perhaps will be one of the longest electrified lines in the world

About the same time, the Nagpur-Durg section of the South Eastern Railway too will be electrified. This again will be another glorious event in the history of Indian Railways The entire 1968-kilometre stretch between Howrah and Bombay VT Via Nagpur will come under electrification

Posers

The Railway budget, or rail finances, raise two vital questions for which no solutions have been found yet. First, who pays for the loss the Railways suffer on account of passenger fares being less than economical? Who will bear the loss on account of concessional freight rates charged for certain types of goods like foodgrains, sugar, salt for human consumption and the like? And thirdly, if the Railways are not permitted to close down the uneconomic branch lines, who will re-imburse them for the losses? In 1988-89, these and other losses totalled Rs. 1,644.46 crores. The Railways call them "social costs", but the society, or rather the Central Government, has shown no inclination to accept this responsibility. Mr. Fernandes says this entire amount should be re-imbursed

The second' is, why should the Railways pay dividend to the Centre on the capital it borrows and has been borrowing since their very inception? These sums are treated as loan in perpetuity If this liability is written off, and the Centre re-imburses the social costs, the Indian Railways will be a very vibrant organisation capable of taking a long leap forward towards modernisation in order to be able to meet the challenges of the 21st century. ◻

Arabinda Ghose, Special Correspondent, Hindustan Times, New Delhi.

(Contd. from page 4)

Simplified procedures

The Export Policy has been made more transparent The constitution, functions and the methodology of the Export licensing Committee have been re-defined Export of a total number of only 191 entries has been regulated. Against this 68 entries are not to be exported at all, 31 can be exported on merit and 25 under limited ceiling

Under the new Export Policy, powers are being delegated for the first time, to the Regional Offices for re-validating the Export licences related to ceiling items to minimise procedural wrangles and delays To encourage investments by Non-Resident Indians the export policy has allowed import of aircraft, air-taxi service and equipment for amusement park.

Observers feel that the exporters of small scale industrial items which are contributing the bulk of the country's exports will be hit hard by the revised criteria for recognition as export trading house The SSI export houses contributed 56 per cent of the total exports which stood at nearly 12,000 crore rupees last year Some exporters feel that the encouragement given to the services sector in the new EXIM Policy amounts to the new Government's yielding to the U.S pressures under Super-301 Act But the Commerce Secretary has made it clear that this encouragement will in no way prejudice India's stand in Uruguay round of GATT negotiations

To sum up the new Export-Import Policy is very much a continuation of the liberal export policy being pursused in the past few years and is expected to pay rich dividends by swelling the country's foreign exchange revenue ◻

Courtesy: Spotlight, AIR

(Contd. from page 10)

be the lines to promote regional development. Controversy usally surrounds this last category, for every MP in his own right considers that his constituency is in great need of a railway line and a railway minister does not find it easy to decide which line should be given preference over others

The Status Paper presents several options which may be briefly stated as follows: From the point of view of overall railway working, it would be ideal to deploy the scarce national resources on viable projects which are cost-effective But this does not lead to satisfaction amongst the people whose aspirations are left unfulfilled. No government can ever fulfil the aspirations of all the people Mr Fernandes's Railway Budget did not do so Nor has Mr Madhu Dandavate's General Budget done so The view aired in the Status Paper that some amount should be earmarked for construction of new lines to open up backward areas has little practical value as money has to be found from the same kitty and earmarking can be done only by depriving projects which should have higher priority Yet another suggestion made in the Status Paper that uneconomic oprations in their entirety be entrusted to a corporation or some other agency to be supported by necessary subsidies from government is beset with the same difficulty Perhaps Mr Fernandes will succeed with the consortium approach that he has proposed for the Konkan Railway If that comes through, that will open a new road to railway expansion The history of the Indian Railways shows that that method was extensively and successfully used in the nineteenth century, but that was when the Indian States regarded railway lines as a status symbol But the conditions today are so different in a democracy and railway lines are the handiest instrument for registering protests ◻

G.S. Khosla, (eminent author) New Delhi

Balanced Regional Development Vs National Integration

Dr. D.S. Nag

Balanced regional development has so far evaded us inspite of the various measures adopted by the Government. Increasing regional disparities are making inroads into the economic unity of the nation and threating national integration, says the author. Where have the programmes aimed at this faltered? What are the possible remedies? These are discussed in detail by the author in the following piece.

DISPARATE REGIONAL DEVELOPMENT divides the country into zones of poverty and prosperity. Wide variations emerge in terms of national income, per capita income, levels of consumption and infrastructure for development. The 'Back-wash effects' released by the developed zone into the underdeveloped one further accentuate these trends. The division of the globe into the developed and underdeveloped worlds is the typical example of such a situation. Its social implications are more dangerous than economic. National integration becomes an uphill task in the face of regional economic inequalities, extreme differences in the standard of living, wide gaps in social services and development opportunities.

We may examine the efficacy and limitations of the concept of "Balanced Regional Development" as an instrument for national integration. There are abundant historical evidences to prove that regional planning was practised in ancient as well as medieval times as (a) a relief measure in areas of recurrent famines, water shortage, epidemic or other natural calamities. Some of the ancient canals, wells, forts, palaces, tree plantings, etc. still stand as concrete monuments of regional development in action in olden days, (b) as a tool to plan the most economical development of resources in a region. Localisation of some ancient crafts, arts, home industries, trades and skills come under this category. It is obvious from the examples that in ancient times the tool was used either for providing relief to the afflicted for a temporary period or for sustaining the already developed centres of home industries The tool was not applied either for accelerating the process of economic growth or for securing regional balance in development But it may be mentioned here that the techniques and the tasks of regional planning change with times. The social objectives of economic development largely decide the nature of the purpose for which the tool is to be used.

In modern times Regional Planning is used generally for removing economic disparities between regions for securing balanced growth in planning and for ensuring the best exploitation of regional development potential. The measure promotes and sustains cohesion in national economy by activising the inter-actionary forces in the development process. Since under-developed zones exercise inhibitory effect on markets, demand structure and investment programmes it is in the interest of the relatively more developed areas to make a deliberate attempt to accelerate development process in the former. It will check the divisive economic forces, prevent regional price variations and avert dents in the landscape of the national plan. The expert opinion is very clear on the subject that "the regional approach allows for the formulation of more rational plans in not only resource development but also in 'cyclical, monetary and fiscal problems'." Advanced countries recognise the importance of the technique and use it in the formulation of their development policies.

Regional planning

In India regional planning has to perform two-fold tasks: (a) *Regional Resources-Development:* Every region of the country has the optimum conditions for the exploitation of a particular or a group of natural resources like minerals, forests, sources of power,

particularly the most rational unit-areas should have physical and economic unity. The work will require the services of geographers, economists statisticians geologists etc. The next job should be to prepare a 'Perspective Plan' for the region as well as its potential for short-term and long-term development during the next 15 or 20 years. A plan by itself does not necessarily lead to implementation Left to the decisions of the public agency concerned, it is doubtful, whether it will be implemented at all inspite of the best intentions It is, therefore, *suggested that implementation of regional plan should be made a legal responsibility of the State Government through an appropriate legislation* like the British Town and Country Plannning Act of 1947, or the Reconstruction Act of North-Rhine-West-phalia in West Germany. The Union Government should be vested with constitutional powers to pull up the faltering State Government.

The demarcation of plan-regions, preparation of regional perspective plans on the basis of physical and economic unity and their vigorous implementation will undoubtedly provide a new perspective and a gigantic task to the people and State Governments On the one hand it will promote scientific and rational outlook and on the other, strengthen the forces of economic unity and balance in the development process. Fissiparous tendencies of language, culture, local patriotism, cast and religion will be submerged under the rising tide of development process

(b) *Coordination with National Plan :* A regional plan cannot and need not be be framed in isolation Alongwith an intensive survey of the development potential of a unit-area there should also be an extensive survey of the larger area in which the region is situated *Such extensive surveys at macrolevel and intensive surveys at micro-level can culminate in a national plan.* Regional planning will thereby be coordinated with national planning policies. The approach would reduce inter-regional economic disparities through regionalised industrial development. The Third Five Year Plan rightly observed that 'development of regions and of the national economy as a whole have to be viewed as parts of a single process. Excessive emphasis without relating their needs to particular requirement of the national economy have to be guarded against National Planning policies which may leave out vast areas of rich development potential can lead to sharp regional disparities, inter-state economic rivalries and lopsided expansion of the national economy It is the principles of regional planning which offer a correct solution to the situation. Their application can provide a satisfactory conceptual frame-work under which regional plans can act as pillars to support the colossal structure of a national plan In essence *the basic task of planning at regional level could be* (a) to contribute to the production of essentials like food clothing, shelter, etc (b) to exploit the development potential of national importance for which the region has the optimum conditions and (c) to reduce regional economic disparities through decentralised industrial development The fulfilment of these very objectives at the regional level can go a long way in accelerating the rate of economic growth in the country as a whole.

What is the most rational region for development ? What should be the inter-relationship between regions, and the region and the country as a whole ? What should be the future pattern of regional framework ? These are complicated questions as they involve inter-disciplinary value-judgements. They require a systematic and continuous research on regional structure. However, some very preliminary thinking can be done at this stage. Taking into account the physical and economic unity, our country appears to have the following broad regions.

1 Eastern Himalayan region
2 Lower Ganges Plains
3. Arid and semi-arid region
4 Peninsular Plateau
5 Western Ghats
6. Eastern Ghats
7 Krishna-Godavari Delta
8. Cauvery Delta
9. Malabar Coast

It is obvious that these regions are based on physical unity and do not relate to planning regions. Only an inter-disciplinary team of specialists-Statisticians, Economists, Geographers, Sociologists and Geologists-can formulate the concept of planning region, select regional components and prepare maps of regional aggregates But the task is of great urgency and brooks no delay unless the planning authorities allow further deepening of regional disparities It is suggested that *a Central Research Unit should* (i) Study problems of area dimensions, (ii) develop and standardise methods of regional analysis and mapping, (iii) work out area standards or norms to help in fixing up criteria and goal in planning the future development of resources and, (iv) analyse regional trends in resource-development.

The problem of regional disparities did not receive any attention during the First Plan as the resources were mostly devoted to the liquidation of the aftereffects of Partition, colonial rule and Post-war reconstruction. However, the *Second Plan* did recognise the importance of the problem at least theoretically. It observed that in any comprehensive plan of development, it is axiomatic that the specific needs of the less developed areas should receive due attention. The Plan accepted in principle that disparities in levels of development between different regions should be progressively reduced. Some measures were also suggested, namely, decentralised industrial production, location of new

enterprises with a view to promote regional balance in industrialisation, promotion of greater mobility of labour between different parts of the country, and continuous study of the problems of regional disparities But unfortunately all these remained only pious proposals There was no attempt on the part of the Government to make its action-programme region-oriented Whatever shift in location policy or regional diversification took place was mainly due to natural endowment and political pressure or the inevitable spread-effects of development of industrial pockets

It is in the Third Plan that the dimensions of the problem, its complexities and the possible lines of solution emerged in their true relief. The Plan pointed out that in the early phases of economic development certain inherent difficulties slowed down the process of achieving a balance between national and regional development. In brief, the difficulties pointed out were limited resource, economic and technical considerations in the case of larger industries, physical features and geographical location, inevitability of intensive and localised development due to expectation of highly favourable returns in short-run, the urgency of realising a minimum in national income, and the difficulties involved in defining a region It is true that these difficulties did not overwhelm the Government completely in the execution of their programmes of decentralised industrial development Progress made in certain directions may be mentioned Programmes of agriculture, community development, village and small scale industries communications and social services carried the benefits of development to remoter parts of the country Multipurpose river valley projects and location of plants of metallurgical industries in the backward areas have also released their economic and technical spread effects in the surrounding areas Special outlays were provided under special schemes for the areas of chronic scarcity conditions, for the pockets of steep backwardness, for tribal areas and areas exposed to natural calamities or a permanent natural disadvantage However, regional disparities have become deeper At one extreme we have industrialised States of Maharashtra and West Bengal and at the other extreme the vast backward tracts of Assam, Orissa, Madhya Pradesh and Rajasthan. Onwards from Fourth to Seventh plan this disparity persisted or deepened further. It is high time that this trend is checked and some special measures taken to reduce the regional disparities which are making inroads into the economic unity of the nation

Regio[illegible]

We may venture to make certain suggestions for the consideration of policy-makers

(1) At present the Union Government extends Central assistance to different States either as share in the centrally pooled tax collection or contributions under the Plan on the basis of tax-collection, population, special requirements or resource mobilisation In practice the criterion makes more resources available to those who already have more or have the capacity to mobilise more. The poor in resources are left poorer at the end of every periodic distribution. The *criterion must be changed.* Lags in development, potential for growth, pressure on cultivated land, special needs of building infra-structure, measures for breaking the bottle-necks and schemes of opening up the 'closed areas' should constitute the basis of the new criterion for canalising central assistance to different regions of the country.

(2) A programme of 'intensive development' should be drawn and implemented on a priority basis for the areas which have in the past been relatively neglected or lagged behind Intensive development of agriculture, extension of irrigation, development of agro-industries, large-scale expansion of power and transport and wider opportunities for general and vocational education are the urgent needs of these areas. In addition the Government both at the Centre and State levels should use their licensing policy for securing the location of new capacity on a regional basis Projects in the public sector should be fairly dispersed over various regions A deliberate attempt has to be made with some rigour to avoid further concentration of industrial activity in areas where considerable development has already taken place.

(3) As regards locating various large scale projects like irrigation projects, steel plants mining projects, it was anticipated that these projects would develop as nuclei of regional growth and their benefits will accrue in greater measure to the population of the region concerned. But on the basis of spot observation one can say that the hope has not been fulfilled and these projects have by and large, remained only *'islands of development' in the vast ocean of backwardness around them.* The reason is not far to seek The *complementary programmes* or schemes related with big projects were not followed up and, consequently, the big projects failed to spark off the process of an integrated development of the region as a whole It is, therefore, suggested that when any big project is located in a backward region schemes for developing ancillary and subsidiary industries, expansion of transport and communication, education and vocational training and schemes of exploiting the regional development potential should also

(Contd. on page 25

Mobilisation of Household savings: The task ahead of NHB

Arup Khan

In this write-up the author makes a strong plea that the National Housing Board encourage mobilisation of household saving through Home Loan Account Scheme. He feels, it is the best scheme for the less affluent. He also says that a study made by an expert body has shown that home ownership can be a powerful motivator for saving. The author underlines the need for evolving a package of measures to mop up the savings of the household sector

THE NATIONAL HOUSING POLICY (1987, Government of India) laid emphasis on large scale investment in housing to mitigate the shortage of shelter. High priority with pinpointing thrust has to be given in respect of affordable housing to the 'disadvantaged' families, viz. Lower Income Group (LIG) and Economically Weaker Section (EWS). Middle Income Housing (MIG) has also to be encouraged in order that LIG housing units do not get diverted to higher income households. As a matter of fact the National Housing Bank (NHB) was set up to provide some relief in the constrained housing finance system in this country. But in a developing economy like India, there is not only shortage of investible resources, but also investment in housing has to establish a meaningful relation with other sectoral investments. The general argument against housing sector is that the investment in housing has a high capital output ratio and low growth potential. The macro-economic theory unfolds the truth that it does not create future investible surplus, it does not reproduce or multiply itself as the thermal power project or an iron and steel industry does. According to development economies an under-developed country should not invest too much in housing sector becuase the housing sector is less productive for immediate growth than the other sectors. But one cannot accept the above argument in its entirety because of two major reasons: (a) Investment in Human Resource Development is measured in human capital to contribute to overall economic development and later housing facilities will contribute towards increased labour productivity (b) Housing constitutes a basic need of human beings and economic growth without provision of basic needs to the general mass of population makes little sense. It can also be pointed out that any kind of housing programme with substantial and equitable subsidies plays a major role in redistribution of income.

Planned investment

From the 1st Plan to 7th Five Year Plan public investment in the housing sector is very low (shown in Table-1). The table analyses the fact that from 1st

Table -I

Investment in Housing through Five Year Plans
(Rs. in crores)

Plan	Total Investment in the economy	Investment in Housing			Investment in Housing as% of total investment in economy		
		Public	Private	Total	Public	Private	Total
1st Plan	3360	250	900	1150	16 0	50 0	34 2
2nd Plan	6750	300	1000	1300	8 2	32 3	19.3
3rd Plan	10400	425	1125	1550	7 0	26 2	14.9
4th Plan	22635	625	2175	2800	4 6	24 2	12.4
5th Plan	53411	601	3636	4630	1 6	22.5	8.7
6th Plan	172210	1491	11500	12991	1 5	15.4	7.5
7th Plan	318148	2458	29000	31458	1 5	16.1	9.0

Source Various Plan Documents

Five Year Plan to 7th Five Year Plan public sector investment drastically decreased as a proportion to total investment by private sector and showed a fluctuating trend.

It is clear from Table-1 that the government reduced the priority given to investment in housing sector. The role of public sector in housing finance has decreased from 1st Plan to 7th Plan while the private sector's contribution is other way round It can generally be accepted that the decreasing trend of investment in housing by public sector means the throwing out the LIG and EWS households from housing market But the basic argument arises that there are plently of public agencies who provide financial help to the LIG and EWS, viz. HUDCO, HDFC, LIC, GIC, commercial banks etc but it caters to very low share of population of that group.

One of the basic objectives of NHB is to warm up the LIG and EWS through Home Loan Accounts Scheme (HLA). So the basic question is with the decreasing trend in public sector's involvement in housing finance, can NHB work properly ?

[illegible]

Gross National Product is one of the measurement scale for housing investment. The measurement of investment in housing is significant for several reasons. First, the construction of housing structure is an economic activity which may be called the housing industry. Secondly the role of investment in housing measuring the flow of national resources directed towards construction of house is indicative of growth of housing in the country. Above all the estimation of savings in the household sector of the economy is an important parameter in physical asset generation in household sector. Table-2 indicates the substantial contribution towards total savings of the household sector The household sector contributed about 70% of the total savings in the Seventh Five Year Plan period.

Table-2

Rates of Gross Domestic Savings by Sector Plan-wise (%)

Plan	*Gross Domestic Savings as percentage to Gross Doestic product at current market prices*			
	Public Sector	*Private, Corporate and Cooperative Sector*	*Household sector*	*Total*
1950-51	1.8	0.5	7.5	10.2
1951-56	1.7	1.0	7.7	10.4
1956-61	2.1	1.3	9 0	12.4
1961-66	3.4	1.8	9.1	14.3
1966-69*	2.4	1.3	11.0	14 7
1969-74	2.9	1.7	12.8	17.4
1974-79	4.7	1.6	15.6	21.9
1980-85	4.0	1.8	16.7	22.5
1985-90	4.5	2.2	17 0	23.7

* 1966-69. Three Annual Plans.
Source: National Accounts Statistic (CSO).

The household sector has registered a progressive increase from First Five Year plan to Seventh Five Year plan, 7.5 per cent in 1950-51 to 17 0 per cent in 1985-90. The household sector supplies Rs. 54773 crores out of the total gross savings of Rs 66,650 crores, i e, 82 18 per cent In India, the major share of household savings comes from urban areas. The increasing trend of urban household savings can be explained in terms of favourable trade and in terms of non-agricultural urban production activities. The urban sector in total household savings increased from 61 3 per cent to 76.9 per cent and the rural sector declined from 38 7 per cent to 23 1 per cent (Sadhak, 1989). CSO data explain that the household savings in rural sector has increased from 16.3 per cent (1961-62 to 1965-66) to 19.8 per cent (1975-76 to 1978-79). From the above analysis it can be said that the increase in household savings was primarily due to intensification of accumulation by small capitalists and the upper stratum (Sadhak, 1989)

The changing trend of household savings in India is mainly influenced by the growth of the public sector, slow pace commercialisation of agriculture and introduction of various financial security measures, viz., insurance, fixed deposit scheme, provident fund etc. The above measures are mainly useful for higher income group and upper strata of middle income group.

To have an insight in savings part, savings can be defined in two ways. Financial savings in the form of currency, bank and other deposits, investment in corporate shares, debentures, LIC contribution, provident fund, UTI and small savings. Physical savings is the second type of savings which take the form of investment in, construction, machinery, equipment, inventories and durable goods Table-3 shows the distribution of household savings between financial and physical forms

Table-3

Percentage Average Gross Savings to the Total Savings (Household sector, Planwise)

Plans	*Percentage average gross savings*	
	Financial	*Physical*
1950-51	8 6	91 4
1951-56	24 4	75 6
1956-61	31 3	68 7
1961-66	38 6	61 4
1966-69	24 6	75 4
1969-74	33 0	67 0
1974-79	36 8	63 2
1980-85	44 3	55 7
1985-90 (estimated)	47 3	52 7

Sources. National Accounts Statistics (CSO)

An examination of the table indicates a steep increase in financial savings. Financial savings increased from 8.6 per cent in 1950-51 to 47.3 per cent in 1985-90 while at the same time physical savings decreased from 91.4 per cent in 1950-51 to 63.2 per

cent in 1974-79 and is estimated to decrease further to 52.7 per cent in the seventh five year plan period

The above discussion mainly tells that there is great potentiality to mobilise household savings Only there is the need of an apex financial institution for motivation and diverting the household sector savings towards housing.

In India, the eyisting housing finance system is dominated by a series of special and general financial institutions. Amongst them, HUDCO (Housing and Urban Development Corporation), HDFC (Housing Development Finance Corporation) are the specialised agencies, LIC (Life Insurance Corporation), GIC (General Insurance Corporation) and commercial banks are the general ones. In terms of financial trunover institutional sources account for only 10 per cent of the total finance in housing sector Apart from this the informal sources of finance have a significant contribution. These include households savings, public and private sectors housing loans to their employess. Table-4 shows the yearly investment in the housing sector. Whereas the informal housing finance covered 76.68 per cent, 76 68 per cent and 74 37 per cent in 1980-81, 1981-82 and 1982-83 respectively, the formal housing finance contributed only 23 32 per cent, 23 24 per cent and 25.63 per cent in 1980-81, 1981-82 and 1982-83 respectively From year-investment flows in housing sector it can be seen that the informal housing finance showed progression over the years The formal sector housing finance disbursed mainly through different institutions (HUDCO, HDFC etc.). Very little part of the finance reaches the LIG and EWS. **The disbursement mechanism through financing institutions is not at all** impressive because of its rigid lending terms. Most of the time the terms and conditions are not easy enough for any EWS or LIG people to obtain a housing loan On the other hand the fund generation of these institutions is mainly through inter-instiutional transfer which has major constraints. Though the emergeme of HUDCO has been a boon as per as the EWS housing is concerned but as HUDCO follows the variable interest rate policy, this does not entertain the informal sector households Another major lacuna is HUDCO's funding of housing projects depends mainly on the initiative taken by housing agencies (State Housing Board) and development authorities Procedural delays and slow construction process by the agency leads to the cost over runs which makes it very difficult for the beneficiary (LIG, EWS) to pay The HDFC mainly operates in the realm of HIG and upper strata of MIG housing because the stringent loan conditions applied do not allow the LIG and EWS to enter the borrowing market HDFC's terms and conditions are such that any individual who wants to obtain a loan should save 35% of his/her monthly income which virtually is impossible for any LIG and finance for retail housing involves a very cumbersome process and they operate only in the areas where they have an organised institutional network. On the other nand, marketable immovable property is a prerequisite for direct loans, Above all LIC's and GIC's basic objective is to maximise the return from any kind of environment This policy will never be suitable for EWS and LIG housing finance The involvement of commercial

Table 4

Annual Investment flows in housing sector

(Rs. in crores)

Financing system and agencies	*1980-81*	%	*1981-82*	%	*1982-83*	%
(1) Formal Housing Finance	729 64	23 32	859 53	23 24	1071 18	25 63
(a) Budgetary	216 03	6 9	288 27	7 79	332 88	7 77
(i) Central	82 61	2 64	104 71	2 83	129 19	3 09
(ii) State and Union territories	133 42	4 26	183 56	4 26	203 69	4 87
(2) General Financial Institutions	283 16	9 05	302 59	8 18	410 40	9 82
(i) LIC	112 66	3 61	129 85	3 51	145 66	3 49
(ii) GIC	32 63	0 23	45 0	0 26	49 50	0 24
(iii) Commercial Bank	71 50	2 29	64 54	1 75	88 87	2 13
(iv) Provident Fund	66 17	2 11	63 20	1 71	126 37	3.02
(3) SF Housing Financing Institution	230 45	7 36	268 67	7 26	327 90	10 55
(i) HUDCO	89 97	2 88	105 24	2 85	131 78	3 15
(ii) Apex Co-op	48 14	1 54	54 49	1 47	61 68	1 48
(iii) Primary Co-op	72 34	2 31	79 15	2 14	86 60	2.07
(iv) HDFC	20 00	0 64	29 79	0.81	47 84	1 14
Total Informal Housing Finance	2399 36	76 68	2838 91	76 68	3108.05	74 37
Total	3129.0	100	3698.44	100	4179 23	100

Source Report of High Level Group on Proposal to set up a NHB and other Allied issues, New Delhi, 1987, Government of India

banks in housing finance market has to prove to be very effective because the housing loans are considered by banks as being unproductive and inflationary.

The demand for housing finance in the informal sector (EWS, LIG) is vast. The channelisation of financial resources is a problem in present set up Because most of the specialised housing finance institutions operating in the formal sector have rigid loan terms Given the high level of demand household savings have tremendous potentiality for informal sector housing finance So the basic question arises, can NHB do this? Table-5 shows some bare fact about household sector savings

Sectoral savings exhibit successive improvements over the plan periods. In 1984-85 and 1988-89 the household sector savings contributed a sizeable amount to the total domestic savings It is a general phenomena that household sector exhibits a preference for financial savings The above situation is a clear cut indication of potentiality of household savings for housing finance What is needed is a package of measures for savings motivation and for channelisation of financial resources into housing sector

Table-5

Sectoral Savings-1984-85 and 1989-90 (Rs. in crores)

Sector	*1984-85*	*Percentage to total*	*1989-90*	*Percentage to total*
Public Sector (organised)	9364	18 46	14443	20 93
Private Coop & Co-op sector (organised)	3737	7 36	6514	9 44
Household Sector (unorganised)	37637	74 18	48040	68 63
	50738	100.00	68997	100.00

Source: 7th Five Year Plan (1985-90), Planning Commission

NHB-functional mechanism

In Seventh Five year plan (document) it was proposed to set up an apex financial institution for housing finance. This apex body was named NHB. On the recommendation by the High Level Group, the National Housing Bank Act 1987 (23rd Dec. 1987) was published for general information.

The act described the functions of National Housing Bank (NHB). The main functions are as follows:

(i) Identification of viable promoter groups for creating decentralised housing finance institutions.

(ii) Provision of seed capital to new institutions.

(iii) Provision of guarantees to state governments to issue bonds and debentures for state housing finance institution.

(iv) Mobilisation of resources in bulk from abroad.

(v) Development of innovative schemes for resource mobilisation.

(vi) Provision of refinance facilities to housing

Amelioration

The review of housing finance system of India suggested that the NHB should encourage mobilisation of household savings through Home Loan Account Scheme (HLAs) by massive campaign and advertisement. The HLAs is the best scheme for EWS and LIG to get a house in affordable rate It is also explained that availability of finance is not the major constraint, only the system is lacking the motivation The issues related to financing for housing activity through savings by NHB can be divided into various parts, viz , savings by public sector through taxation savings exclusive of public sector employees private savings by corporate sector and households savings

The decreasing trend (Table-1) of investment in housing sector through the Five year Plan period is not at all impressive for housing activity. Also savings by public sector enterprises have no hope becuase the annual capital formation by this sector is not at all impressive Besides this the high interest rate on the loan is another constraint for mobilisation in large scale. But still this sector has some potentiality for mobilising resource

The private savings by the corporate sector will be the myth for resource mobilisation for housing because this source turns out to be very costly as interest rate on loan borrowed is very high But this sector has potentiality but the problem lies with the source which is very informal in nature. In this regard only the left out sector is household savings sector But the irregular savings nature of EWS and LIG households cannot enter the housing market unless and until there is some proper motivation of savings through the housing finance institutions. A study by HSMI (Housing Settlement Management Institute, New Delhi) proved that home ownership can be a powerful motivator for savings even by poor households

The EWS and LIG beneficiaries who got their shelter under high purchase agreements were able to raise a significant amount of resources for down payments through inter-households transfer. It was also found from the study that purchase of a house forced the EWS and LIG households to save more and spend less. As such NHB can motivate household savings through this type of systematic approach

The insignificant contribution of different five years plan is not at all a healthy issue for housing finance by the policy maker and researchers. The needed demand for financial resource can be mitigated through household savings.

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Export of Leather and Leather Products—Strategy for 90's

Dr. B. Murugesan & K. Subramanian

There is an urgent need for the leather industry to embark concertedly on the export of finished goods and consumer products at competitive rates to make a dent in the world market. The authors strongly favour that government create more opportunities for value added products. There is need for stepping up investment and focus on specific markets for vigourous export campaign.

INDIA HAS BEEN experiencing a severe unfavourable balance of trade and the problems relating to it. Despite laudable efforts concentrated on increasing the rate of growth of exports, it is lagging far behind the imports While it is essential to intensify import restriction and substitution effort, it is more essential to promote exports in all possible areas of business and industry One of the immediate steps in this direction is that the growth prospects of exports in the industries already doing well should be consolidated and given a new upward thrust of high-profited export industries The leather industry is one such industry.

The leather industry, one of the oldest and traditional industries in India, has all along remained export-oriented. The World leather market for India's leather and leather products is expanding. Its contribution to the gross exports turnover and earnings of the country has been significant and growing For example in 1988-89, the export of leather and leather products touched all time high of Rs 1,600 crores

India has high potential for export of leather and leatner products because of its big raw material base of leather-hides and skins According to Council for Leather Research Institute, the estimated availability of hides per annum at present is 34 million pieces and of skins 74 million pieces Buffalo calf leather from India is a speciality,so also the goat (kid) leather from India India's well developed tanning and finishing facilities, capable of producing excellent quality leathers, suit to different types of end uses Besides, there is a vast network of production facilities for making all-leather goods such as footwear, garment, ladies hand bags, wallets, travelware, industrial gloves, belts, desk tops, fashion gloves, sports gloves heavy luggages etc , and it has a vast manpower base endowed with rich traditional skills.

Over a period of time, the performance of leather industry on the export front has been quite impressive In fact by the end of the third year of the seventh plan export achievements of the industry have exceeded the export target set for the ultimate year of the seventh plan In spite of these remarkable achievements , it is felt by many that the Indian leather industry has failed to make a dent in the world market,especially when leather industry has witnessed declining trend in the leading consuming countries like USA, FRG, UK etc This declining trend in the industry resulted in their declining interest in the import of leather and increasing interest in import of various leather products This made them to look at the developing countries with low labour cost as possible source It is to be mentioned here that while leading exporting countries like South Korea, Taiwan, Hong Kong have got a major chunk of the benefit of this shift, India is yet to grab this opportunity. Hence an attempt is made in this paper to evaluate the export performance of the leather industry and to suggest a suitable strategy so as to enable India to become the market leader in the world market for leather and leather products

Objectives

With this end in view, the following objectives are framed·

1 To study the extent of export market potential for various leather and leather products.

2. To identify the Countries/Regions where the market for leather and leather products is prospective.
3. To formulate a suitable strategy for the improvement of export performance of leather industry.

Product-wise analysis

Semi-finished leather, finished leather, footwear components, footwear, leather garments and leather goods constitute our major exports of leather. It may at this stage, be of interest to make an analysis of different products exported from India. Such product-wise analysis would be of immense use to the policymakers to frame the suitable strategy to develop those products which are mostly demanded in the world market. Table-I indicates the export profile of leather industry during the years 1984-85 to 1988-89. The export of leather and leather products increased from Rs. 5,837.57 million in 1984-85 to Rs. 16,083.77 million in 1988-89, registering an increase of 275.52 per cent. The rate of growth of export during this period has been striking. An attempt has been made in the subsequent paragraphs to analyse our export profile over the last few years,the product category of leather and leather products

It can also be seen from the table that the composition of semi-finished leather to total export of leather and leather products over the five years decreased to some extent i.e., from 8 per cent in 1984-85 to 2.8 per cent in 1988-89 The decrease of export of semi-finished leather is as a result of export control regulation policy which discouraged the export of raw and semi-finished leather

Finished leather

It could be seen from the table that the finished leather is one of the important items accounting for about 40 per cent of the export earnings. The export of finished leather has gone down from 52 85 per cent in 1984-85 to 40.41 per cent in 1988-89 But in terms of value, it has doubled from Rs. 3085 28 million in 1984-85 to Rs. 6498.77 million in 1988-89 This decline of finished leather to total export of leather and leather products is attributable to the use of finished leather for making leather products within this country It is a welcome sign that the finished leather is used within the country for making leather products which are being exported, thereby gaining more foreign exchange than the mere export in the form of finished leather.

Next to finished leather, footwear components dominate the export of leather and leather products For example, this category has earned Rs. 4,526 25 million foreign exchange to exchequer during the year 1988-89. A casual look at the table reveals that this category of products is maintaining more or less same trend for all the years under study. Though it is the second major export of leather products, it accounts for 20.70 per cent of the world footwear component market. For e.g., during 1985, the global import was placed at 0.763 billion dollars of which India's share was 0.158 million dollars. The major importers of India's footwear components are USSR, FRG, UK and the USA.

In Footwear component world market, particularly for shoe uppers, India has a big presence. Other important exporters are Yugoslavia, Portugal and

Table I

India's Export of Leather and Leather Products from 1984-85 to 1988-89

(Rs. in million)

Products Category	*1984-85*	*1985-86*	*1986-87*	*1987-88*	*1988-89*
Semifinished leather	491.56	490 72	525 00	725 89	449 96
	(8 42)	(7 41)	(5 64)	(5 83)	(2 80)
Finished leather	3085 28	2881 95	4008 94	4859 69	6498 77
	(52.85)	(43 50)	(43 07)	(39 04)	(40 41)
Footwear components	1327 85	1903 52	2406 92	3238 34	4256 25
	(22 75)	(28 73)	(25 86)	(26.01)	(26 46)
Leather footwear	267 73	330 31	803 83	1280 32	1301 74
	(4 59)	(4 99)	(8 64)	(10 28)	(8 09)
Leather garments	94 60	167.22	6[illegible]2 67	1057 21	1661 53
	(1 62)	(2 52)	(6 69)	(8 49)	(10 33)
Leather goods	570.55	851 42	940 40	1287.15	1915 47
	(9 77)	(12 85)	(10 10)	(10 34)	(11 91)
Total	5837 57	6625 14	9307 76	12448 60	16083 72
	(100 00)	(100 00)	(100 00)	(100 00)	(100 00)

Figures in the parantheses show the percentage to the total
Source: Council for Leather exports, Madras

Brazil. Though India is in a commanding position in the world footwear market, it is doubtful whether she can maintain the position for the years to come It has already been mentioned that the leather industry has witnessed the declining trend in some of the major leather product consuming countries, for the reasons explained already. The import of footwear component by these countries may continue for a while but decline soon yielding place to import of complete footwear However, the import of footwear component in the socialist countries promises to remain important for quite some years to come. So it is the time for Indian leather industry to concentrate more on the production and export of footwear instead of exporting footwear components

[illegible]

The leather garment sector is a rather new sector in the leather industry and has come up in the past 3-4 years in a big way This sector has registered a tremendous rate of growth; its export having gone up from Rs. 94 60 million in 1984-85 to Rs 1,661 53 million in 1988-89. It is expected to reach a level of Rs 2000 million in 1989-90 This sudden rise of export of leather garments is attributable to our ability to modernise and adopt the high quality and fashioned leather garments which are priced at competitive rates in the foreign market

In the global leather garment market, Indian leather industry has responded well The figure shown in the table indicate that the demand for Indian leather garments would remain high for quite some years to come: The USA is one of the bulk consumers of leather garments, South Korea has a dominant position (over 60 per cent) in this market closely followed by Hong Kong, Italy, Mexico and India has a fairly good share.

Leather goods

The table reveals that the export of leather goods has not shown any substantial increase for e.g., the export of leather goods accounts for about 10 per cent of the total export for all the years under study. In this sector, ladies hand bag is the dominant item exported by India. Other items are industrial gloves, travelware, fashion accessories etc We have not yet exported fashion gloves, sports gloves, heavg luggages etc. India's export performance in leather goods is very poor, of course, except of Saddlery and Harness items in which India has a big presence. The world market for leather goods is dominated by countries like South Korea, Hong Kong, Taiwan, Singapore, etc India's export of 0 075 billion dollars as against the global import of 3,675 million dollars measures to too small and an insignificant percentage Thus India is virtually non-existent in the market for fashion gloves, sports gloves, travelware, belts and fashion accessories

Having analysed the export of leather and leather products for five years, we have got one side of the picture We need to know the other side of the picture i e, country-wise analysis so that we can identify the potential market for India's leather and leather

Table II

India's Export of Leather and Leather Products

(Rs. in million)

Countries	1984-85	1985-86	1986-87	1987-88	1988-89
Russia	1063 85	1202 62	1736 66	2111 43	3402 36
	(18.22)	(18 15)	(18 66)	(16 96)	(21 15)
West Germany	700 19	871 02	1577 06	2292 58	2531 38
	(11 99)	(13 15)	(16 94)	(18 42)	(15 74)
America	854 99	783 91	1059 71	1536 82	2105 36
	(14 65)	(11 83)	(11 39)	(12 35)	(13 09)
Britain	521 51	551 18	717 18	1242 16	1761 80
	(8 93)	(8 32)	(7 71)	(9 98)	(10 95)
Italy	611 62	629 70	876 82	1265 64	1195 67
	(10 48)	(9 50)	(9 42)	(10 17)	(7 43)
France	347 05	360 19	468 30	639 41	683 37
	(5 95)	(5 44)	(5 03)	(5 14)	(4 25)
East Germany	269 20	336 97	543 99	493 46	625 37
	(4 61)	(5 09)	(5.84)	(3 96)	(3 89)
Japan	127 96	146 57	139 87	258 44	306 20
	(2 19)	(2 21)	(1 50)	(2 08)	(1 90)
Netherland	89 13	93 80	122 20	204 70	261.17
	(1 53)	(1 42)	(1 31)	(1 64)	(1 62)
Other countries	1252 07	1649 18	2065 19	2403 96	3211 39
	(21 45)	(24 89)	(22 19)	(19 31)	(19 97)
Total	5837 57	6625 14	9306 98	12448 60	16084 07
	100 00	100 00	100 00	100 00	100 00

Figures in the parantheses show the percentage to the total

Sources Council for Leather Exports, Madras

products. With this end in view, the countrywise analysis is attempted here to suggest the strategies in 90's.

The country-wise and year-wise export of leather and leather products from India are presented in Table II

A look at the table reveals that about 80 per cent of India's export is directed to nine countries Among these, USSR, West Germany, America, Britain and Italy are the major consumers of Indian leather and leather products and they account for 21.15 per cent, 15.71 per cent, 13.10 per cent, 10 95 per cent, and 7 43 per cent respectively of India's export earning in leather and leather products. Furthermore, these countries will continue to be the major consumers for the years to come. The consumption rate of Indian leather and leather products in these countries is more or less same for all the years under study For example, the USSR accounted for 18.22 per cent of India's total export of leather and leather products in 1984-85. The figures for 1985-86, 1986-87, 1987-88 and 1988-89 are 18 15 per cent, 18.66 per cent, 16.96 per cent and 21 15 per cent respectively. So it can be inferred from the above that the countries which import leather and leather products from India, continue to be loyal and the quantum of the import is more or less same.

An attempt has been made in the subsequent paragraphs to analyse the export potentialities of Indian leather and leather products Such country-wise analysis would throw light to identify the major potential markets for leather and leather products. For this purpose, a few countries viz , USSR, FRG, USA, Italy and UK have been considered for analysis The Soviet Union ranks first in imports of leather products from India in terms of value The share of this country to India's total export has gradually increased from 18.22 per cent in 1984-85 to 21 5 per cent in 1988-89 USSR accounts for one-fifth of our total export of leather and leather products. However, it does not seem to be a potential market for value added leather products.

Federal Republic of Germany

FRG is the second major importer of Indian leather and leather products India earns about Rs. 253 crores annually by exporting leather and leather products of this country Unlike USSR, FRG's imports from India constitutes 50 per cent of leather goods. Leather garments, leather footwear and leather goods account for about 18 per cent, 13 per cent and 19 per cent respectively. Since FRG is the bulk consumer of both leather and leather products, India can concentrate more on this market. Further, it is understood from the trade circle that the leather industry in FRG has declined substantially and the limited production of leather products from the domestic industry caters only to the highly priced market segments. As it is, the lower priced and medium priced market segments are catered to by imported products. Further, the consumption per head of footwear, garments and other leather goods in this country is high and expected to grow. Hence imports too. FRG should be one of the potential markets for our leather and leather products.

United States of America

A look at the global market would indicate that the USA happens to be the major consumer of leather and leather products. Of the global import of leather and leather products in 1985-86 more than 36 per cent was accounted for by one single country i.e , USA The levels of consumption of various leather products in this country are quite high The leather products are regarded as status symbol apart from advantages of comfort and utility

As far as India is concerned, India's share in the total imports of USA is very negligible. For example during the year 1985-86, USA imported about 9,695 million US dollars worth of leather and leather products whereas India's share was only 82 million US dollars It works out to 0.84 per cent. USA like FRG imports both leather and leather products. Import of finished leather accounts for about 28 per cent, footwear components 19 per cent and import of leather, footwear, garments and other leather goods account for the remaining 57 per cent.

India's performance in USA's leather market is very poor. For example, India's share in US footwear market is 0 36 per cent. The corresponding figures for footwear components, leather goods and leather garments are 0.25 per cent, 0.94 per cent and 0.66 per cent respectively. USA is one of the potential markets for leather products India's desire to grab a reasonable share in the global leather market inveriably depends upon its dominance over the USA leather market. To achieve this, policies have to be so tailored that the growth process is accelerated towards this direction

Great Britain

Great Britain is ranked as fourth country in importing leather and leather products from India The export of leather and leather products in terms of value has considerably increased from Rs. 521.51 million in 1984-85 to Rs. 1761 80 million in 1988-89 Among product-wise items exported, the semi-finished leather, finished leather and footwear component account for 54 per cent of total export The remaining share is accounted for by footwear 6 per cent leather garments 29 per cent and leather goods 1[illegible] per cent.

Unlike USA and FRG, the leather industry in UK is growing strong. As a result, despite the rising wage level and the growing disinterest among the labour force, it is still fairing better with sizable production of leather goods. So the demand for semi-finished

leather and finished leather will be more than that of leather goods. India is the major supplier of footwear components to the British market, for example, 46 66 per cênt of the export of footwear components from India is directed to UK, closely followed by FRG. India has to maintain this market for the survival of footwear segment of Indian leather industry.

Italy

Italy contributes 7.43 per cent of export earnings in India's leather and leather products Like UK, the leather industry in Italy is quite strong and the demand for semi-finished leather and finished leather is increasing steadily It prefers to import leather as raw material instead of leather products. About 83 per cent of the India's export of leather and leather products constitutes semi-finished and finished leathers

It becomes evident that there is a need for clear-cut strategy for development of leather industry in India The country-wise analysis of export of leather and leather products shows that among the major importing countries of India's leather and leather products, USSR and Italy are the major importers of semi-finished and finished leather. As the government intends to discourage the export of semi-finished and finished leather, the USSR and Italy will no more be our potential markets. So we have to concentrate more on the other bulk consuming countries like America, West Germany and British. We will have to penetrate into these markets

The product-wise analysis shows that there is a heavy demand for India's semi-finished leather, finished leather and footwear components. We have to bear in mind that leather is a scarce and costly raw material and its availability is not linked with the demand for leather products, but with the demand for meat, milk, wool and evolving animal husbandry practices. It is to be ensured that each and every piece of leather available in the country is to be procured, preserved and processed into diverse articles in the best possible manner.

There is no doubt that we have made tremendous progress in the last five years. But at the same time it is to be mentioned here that 70 per cent of export earnings derived from semi-finished and finished leathers which are used as raw materials for manufacturing leather goods This is not a welcomable trend. The share of leather goods should be more than that of semi-finished and finished leathers. So the policy of the government should be to encourage value added exports so as to generate more employment opportunities within the country and earn more foreign exchange,

The product-wise analysis of different product groups clearly highlights the very urgent need for the Indian leather industry to move into the finished goods and export of quality consumer products at competitive rates if it has to get better share in the international market. Any postponement or investment by the leather industry in this direction would only prove counter productive and make India to continue as a supplier of faw material and industrial product only thereby earning much less than what we ought to by being dependent on derived demand rather than by creating demand for our products

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be implemented with the same sense of importance and urgency as for the big projects.

(4) There is a wide range of consumer goods and processing industries in which it is possible to foster regional patterns of development. After the concept of a 'region' is clearly defined and various regions for development are demarcated, an attempt should be made through licensing to locate new capacity on the basis of a regional pattern This will lead to diffusion and diversification of the industrial activity over different parts of the country

(5) *A Central Institute of Regional Development should be set up to study the economic trends and rates of growth in different areas.* The proposed Institute should undertake a continuous study of regional indicators based on 'State Income', agricultural and industrial production, investment, unemployment, electricity consumption, irrigated area, level of consumption expenditure, road mileage, occupational distribution of population and educational facilities Such studies will enable the planning authorities to evolve patterns of regional development and keep a watch over the operation of forces of regional balances in the process of development.

The development of regions must become an integral part of the single process of the developing national economy as a whole. The progress of regions should be reflected in the progress of the nation and vice-versa. □

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Devolution of Funds to Municipalities: A case for better instruments

K.K. Pandey

Under the existing arrangements, municipalities are starved of funds which is one of the reasons for their poor services. Devolution of resources from Direct and Indirect taxes has a strong urban bias and municipalities are denied their due share. In this article the author discusses about some sources hitherto untapped,. like a mass personal tax, to improve buoyancy of the municipal kitty.

THE SUCCESSIVE STUDIES on municipal finances in India have reiterated that the system of devolution of funds to the urban local bodies has been by and large ad hoc and irregular As a result of this, its share in the municipal incomes has been declining over the years. As per a recent study by NIUA (Nature and Dimension of Urban Fiscal Crisis: 1987) the share of external fiscal assistance (mainly the devolution of funds) to the urban local bodies has not only remained low but also declined from 16% in 1979 to 15% in 1984. By contrast, in most developed countries the share transfers to the municipalities from higher layers of governments constitute a proportion ranging from 60 to 90 per cent of municipal incomes

In view of this,it becomes imperative to rationalise the present system of fiscal transfers to the municipalities so that their financial health can be improved to at least a resonable level. Owing to the fact that urban development is a state subject in our federal structure, this becomes the responsibility of state governments. However, in most cases, the state governments have not brought any substantial change in their conventional methods of share transfer. Ony a few states tried to do something in this regard.

Andhra Pradesh was the first state to constitute a finance commission in 1971 in order to have an assessment of the resource gap at municipal level and identify the possible ways and means by which such gap can be bridged. Subsequently a few other states also constituted a finance commission such as Orissa (1974), Karnataka (1975), Kerala (1976), Tamil Nadu (1980) and West Bengal (1982). However, the follow up of these commissions has been almost nil except in the case of West Bengal which has evolved some scientific criterion for the devolution of funds to the municipalities. Ideally the state level commissions should have been formed with a view to provide a feed back to the Central Finance Commission But none of these states tried to have such linkages with the Central Finance Commission

At present the practices of fiscal transfers to the muncipalities vary from state to state. For instance in most cases, only specific purpose grants are being disbursed by the respective state governments The determination of these grants basically depends upon the ability of the municipality to put up its case and also the political pressure that can be mobilised by them. However in a few cases the methods of determination of grants include some type of scientific and technical criterion such as: the disbursement of general purpose grant in Rajasthan and transfer of proceeds of the revenue collection from Entertainment tax in Karnataka, Andhra and Kerala. But, in most other cases the state taxes are not shared directly with the municipal bodies

Marked departure

Apart from the taxes collected by the states, the share transfer received by the state from the centre is also not being transfered to municipal bodies on a reasonable basis. In this regard the Ninth Finance Commission has made a significant departure from the preceeding commissions and has paved the way for the direct devolution of funds to the municipal

bodies. The commission in its first report has recommended a one time grant of Rs. 50 crores each to the government of Maharashtra and West Bengal for the environmental improvement of slums and the provision of basic amenities in the cities of Bombay and Calcutta. This is a welcome trend for the future. The Finance Commission in the same report has also placed emphasis on the equalisation of some basic social and community services.

Now the question arises whether the equalisation of services is possible in terms of affordability by the municipalities both with regard to capital as well as maintenance financing. As pointed out by the successive studies on municipal finances, with their present level of resource mobilisation it is not possible for the municipal bodies to afford an equalisation of services. It is in this context that reforming the devolution of funds to the municipal bodies, becomes one of the most important instruments for augmenting the municipal resources.

Devolution of funds to the muncipalities is theoretically an obligatory function of higher levels (Centre/State) of government. The idea is to obtain optimum social justice and advantage which involves the allocation of resources for an efficient delivery of social services such as health (both curative as well as preventive), water supply and sanitation, primary education, housing, poverty alleviation and other programmes for the weaker sections of the community. Since many of these services form a part of core municipal services, a need for share transfer to the municipalities becomes imperative

Taxes and duties are universally considered the most important instruments of such devolution as they involve a transfer of purchasing power in order to subsidize the public expenditure on social services. This is the area in which the proposed finance commissions should explore the possibilities of a rationalized devolution to municipalities These include the taxes on income, expenditure and sale of services. These taxes have a strong urban bias However, the municipalities in most of our states do not receive any or a reasonable share from their proceeds However, in other countries some innovative approaches are being applied.

Income tax is one of the most important taxes collected by the Centre. The respective state governments receive a particular amount from its proceeds on a pre-determined formula. However, the municipalities do not receive any funds directly or this account. In most other countries this practice is however, different as their municipal bodies either receive a fixed percentage of proceeds from the income tax collected within the municipal boundaries or levy a surcharge on income tax that is a percentage addition to the tax liabilities as assessed and collected by the central government. The countires where the income tax proceeds are pooled and distributed by a formula to the municipal bodies are: Netherlands, Brazil and Nigeria whereas the countries belonging to the other category i.e. the levying of a surcharge on income tax for the respective municipal bodies are Japan, Belgium, Denmark, Italy, Norway, Sweden and Switzerland.

As in other countries, in India too the majority of the earners do not pay the income tax. In such case a mass personal tax is levied by the municipalities in many countries on the lower segments who do not pay any income tax In India too this practice can be adopted subject to a suitable application of tax-rate

Next to the taxes on income are the taxes on expenditure that can substantially raise the municipal resources These are also known as indirect tax They can usually be passed on by the payer to someone else normally the end user These include a broad sweep of local sales tax, royalties, entertainment tax, moter vehicle tax and so on. In most states these taxes are not directly shared with the municipal bodies The amount thus shared does not increase commensurate to the increase in the tax proceeds. Only in a few states the entertainment tax or vehicle tax is being directly shared. These are the states of Andhra Pradesh, Kerala, Union Territory of Delhi and so on.

As in the case of taxes on income, in many other countries the taxes on expenditure are also being directly shared or levied by their municipal bodies e g in Netherlands and Phillippines the municipal bodies receive a share of national sales tax Similarly Brazilian municipalities receive 20 per cent of Value Added Taxes (VAT's).

The third promising area whereby the municipalities should have a proper sharing is the taxes on the sale of services These include the hotels and restaurants, and public utilitiy bills (electricity, cooking gas and telephone). In this case the municipalities may receive a surcharge on the sale of these services e.g. the Indonesian municipalities receive a surcharge on the use of hotels and restaurants.

These are the instruments (through which if a scientific and reasonable devolution is applied), that will substantially improve the fiscal health of municipalities. The proposed finance commissions should look into these instruments without any differentiation and a proper formula should be evolved as to how much the state has and how much it can and it should transfer to the municipalities. At the same time, the devolution of funds to municipalities should be linked with their performance at resource mobilisation front so that the revenue mobilisation at local-level does not get affected. This also requires that the proposed finance commission should be set up after an interval of five years so that they can provide a feed back to the central finance commission.

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Dr. M.P. Mathur

Though Grants-in-aid plays a vital role in the development process of municipal bodies, its structure and pattern of dispersal is confusing and largely ad-hoc in most states. The author therefore, advocates for restructuring of the grants-in-aid system and its application to individual municipal bodies to preserve the financial health of municipal bodies and help in overall national regional development.

THE FINANCIAL RELATIONS between the state and municipal authorities in most states are confusing and largely on an adhoc basis The result is that one comes across a wide variety of grants given for different purposes, in many cases the grants given are in the form of subventions and in small amounts The system is extremely chaotic. Considering the detective grants-in-aid code, the Local Finance Enquiry Committee (1951) had stated that State government while investing local bodies with wider responsibilities must also place at their disposal adequate funds for an efficient functioning of their services The Taxation Enquiry Commission way back in the early fifties (1953-54) also had expressed almost similar views with regard to grants-in-aid. In addition, the commission had also suggested specific grants for specific functions.

The Zakaria Committee (1963) had mentioned in its report that the principle that grants-in-aid should form one of the important sources of revenue of local authorities, has been accepted all over the world. It has been estimated that in England grants constituted more than one-third of the total local revenue which is almost three fold higher than the Indian system. According to the study conducted by the NIUA for the Ninth Finance Commission, on an average, the grants component of municipal income form roughly 16-18 per cent of total municipal revenue income This proportionate share, however, varied significantly from one state to another and even within the same State, from one urban centre to another

The Zakaria Committee adopted the normative approach to grants-in-aid and recommended that the municipal bodies be divided into six categories based on their population size for general purpose grants The rates they suggested varied from Rs 0 25 per capita in metropolitan centres and major industrial towns to Rs. 1 50 per head in respect of smaller municipalities at the price level prevailing in 1960-61

With regard to specific grants for various developmental works specially water supply and drainage, the committee had suggested that this may be decided by the respective state governments after taking into account all the relevant factors with a view to make the project a practical proposition

In later years, many of the state governments such as Orissa, West Bengal, Gujarat and so on, appointed committees and commissions to look into the financial health of municipal bodies and also their grants-in-aid structure These committees have suggested a number of measures to modify the grants-in-aid code in their respective states:

- There should be a periodic review say after 5 years of the grants-in-aid structure and pattern by the expert committee to take stock of inflation, population growth and other indicators,
- Grants-in-aid may be linked to the resource mobilisation efforts of the municipal body
- Due weightage should be given to the special problems of each municipal body; and
- Adequate grants may be given to bridge the gap between the service standards among the various municipal bodies by way of two fold funding, capital funds for carrying out such projects and recurring nature grants for operational and maintenance purposes

At the Union Government level, the issue of grants-in-aid was first considered by the Sixth Finance Commission. This Commission recommended a

grant-in-aid for the upgradation of standards in non-development sectors and services The Seventh and Eighth Finance Commissions continued to make recommendations for Grants-in-aid for the upgradation of standards of administration and services. The Eighth Finance Commission selected, in addition, two other sectors education and health, for purposes of upgradation grant "in view of their crucial importance." However, it did not recommend any grant-in-aid for raising the service levels of urban local bodies on the ground that "the problem is too large to be dealt with through ugradation provision "

The Ninth Finance Commission in its first report for 1989-90 has made a significant departure from the preceding Commissions in that it has recommended a one-time grant of Rs. 50 crores each to the Governments of Maharashtra and West Bengal for environmental improvement of slums and provision of basic amenities in the cities of Bombay and Calcutta It has pointed out, in addition, that "equalisation of certain social and community services is one of the objectives of the Finance Commission", and it has accordingly provided for significantly higher levels of grant-in-aid for education and health services

Regarding the role of grants-in-aid in the development process of municipal bodies, divergent views have been expressed by different committees and commissions-both in favour of strengthening their financial position, and against because this may curtail the autonomous character of municipal governments and increase the functional dependency on states However, it may be reiterated that the municipal bodies are the creatures of states, and the states, accordingly, lay down their functions and resource-raising powers in the municipal Acts Thus the argument in favour of grants-in-aid seems to be more appropriate In fact, the state governments have a dual responsibility Firstly, to make available adequate finance for the functions assigned, and secondly, to ensure that the assigned functions are performed efficiently Without adequate grants-in-aid, neither of the functions-obligatory nor discretionary-can be discharged efficiently

In the foregoing discussion it is clear that grants-in-aid is a fiscal instrument for the devolution of funds from the state to urabn local bodies to perform their functions effectively Grants-in-aid may be broadly classified into three categories

(i) Recurring or general purpose grant meant for budgetary support to local revenues,
(ii) Grants in lieu of resources taken over from the municipal bodies such as grants in lieu of octroi, and
(iii) specific grants for development purpose or maintenance of certain services.

The structure of grants-in aid varies from state to state the amount of grant, is however determined largely on the following basis

- Unit basis-per capita population or works;
- Resource deficiency basis-gap between needs and resources;
- Service standardisation basis-gap between demand and supply or standard norms and actual supply;
- Priority areas in the context of overall regional and national development; and
- Formula basis-taking into account all the developmental indicators such as population, income, expenditure, priority attached to service, and so on

All India Table 1

Per Capita Grants-in-aid norms as Suggested by Zakaria Committee

(Rs.)

Category	*Population size*	*At 1960-61 prices*	*At 1986-87 prices (updated figures)*
A Special	Above 20 lakhs and industrial cities above 10 lakhs	0 25	1 53
A	5 - 20 lakhs	0 25	1 53
B	1 5 lakhs	0 50	3 06
C	50,000-1 lakh	0 75	4 59
D	20 000-50,000	1 00	6 13
E	Below 20,000	1 50	9 19

Source NIUA, Upgrading Municipal Services Norms and Financial Implications, 1989

All India Table 2

Highest and Lowest Proportions of Grants-in-Aid for Various Purposes-State Dominance, 1986-87

Type of grants	*% share in total grants*	*States*
General purpose	75 100	Himachal Pradesh Megnalaya, Tripura.
	1 20	Bihar Karnataka Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu
Specific purpose	75 100	Bihar Madhya Pradesh & Goa
	1 20	Karnataka Kerala, Meghalaya Tamil Nadu & Tripura
In lieu of taxes	75 100	Karnataka, Manipur, Tamil Nadu
	1 20	Haryana Madhya Pradesh, orissa & Rajasthan

Source NIUA Upgrading Municipal Services Norms and Financial Implications 1989

Madhya Pradesh, for example has adopted combined method both on population and service criteria Gujarat has adopted the per capita system of grants-in aid based on population size of the municipal bodies while in Uttar Pradesh and some other states, the grants structure and pattern is ad hoc Specific functions such as roads, education, and so on are covered, in addition to a share in salaries of municipal staff. In fact, the grants-in-aid system in most states is very confusing and largely on an ad hoc basis. This has resulted in budgetary suspense, lack

of capital formation and neglect of maintenance of essential civic services. It is significant that in West Bengal an attempt has been made to rationalise the general purpose grants and the evolutions for meeting the need of development finance by almost replecating the Central Finance Commission (CFC). With a view to rationalise the chaotic system of giving subventions as a gap filling device, the West Bengal Municipal Finance Commission (WBMFC), following the practices of the CFC, projected the growth of revenues and expenditure of various local bodies to know the extent of gap. Having known the gap, they first tried to fill it not by subventions but by suggesting a scheme of tax sharing. The revenue grant is thus to be given to only such local bodies which are still in deficit. On the other hand, the surplus local bodies are to transfer their surpluses to the capital account for financing of the various development projects.

Considering the defective grants-in-aid code in most states, the National Commission on Urbanisation has mentioned that if the former Finance Commissions had laid down principles relating to grants to the states out of the Consolidated Fund of India under article 280 (b), and stated what portion of such grants should be passed on to the local bodies and on what principles, perhaps this problem could have been overcome.

thus for a better utilisation of grants-in-aid in the context of overall national regional development in general and the financial health of municipal bodies in particular, the state governments should modify the grants-in-aid structure and its application at individual municipal level by taking into account their funcional roles, financial position and other local characteristics. Besides these factors, there should be a regular flow of grant money from state to local level to avoid any level of confusion for effective functioning of municipal bodies

With regard to plan grants for financing capital projects in urban areas, a system of five year fiscal plans may be introduced at municipal level which can be brought within the framework of State Plans. This will not only facilitate a regular flow of funds from the state plan outlay but also help the local bodies in managing their non-plan revenue spendings in tune with the requirements. The advantage of this mechanism is that once the municipal plans are integrated into state plans, a two tier system of capital grant could be introduced. Firstly, replicating the practice of having centrally sponsored schemes at the national level, there could be introduced a system of patterned grant for the sectors having overall state priorities and secondly, a block grant could be given for enabling the municipal authorities to finance their five year plans. It could be a mix of loan and grant, the ratio of the two depending upon the size of the local jurisdiction. Smaller the size, larger should be the ratio of grants. □

Dr. M.P. Mathur
Sr. Research Member, NIUA, New Delhi.

(Contd. from page 8)

also in its potential for labour absorption on a large scale. Government proposes to come out with an Agricultural Policy Resolution. Agriculture, as Professor Dandavate describes, is the hub of the Indian economy.

Professor Dandavate had to carry out his maiden fiscal exercise under severe constraints and while expectations were running high, there were limits beyond which he could not allow himself to go The budget may not thus satisfy all sections of the people The budget speech still leaves many options open, in regard to making a frontal attack on black money or in mobilising more savings of the community after the stagnation of the gross rate of savings in the Eighties. Finally The stiff increase in postal rates will also cause hardship to the people

Courtesy : Spotlight, AIR

(Contd. from page 20)

Last but not least it can be said that household sector savings are considerable enough to support housing finance activities. Only the question remains-can NHB do this ? □

Arup Khan, Research Associate of the school of planning & Architectured, New Delhi.

Curb on Import of foreign cars

In order to prevent misuse of the facility for import of foreign cars, Government has decided that import of motor vehicles by Indian Nationals will henceforth be allowed provided the applicant has stayed abroad continuously atleast for a period of 2 years and the vehicle has been in the use of the applicant atleast for a period of 1 year prior to his return to India. These conditions are in accordance with those applicable to import of personal effect including consumer durables under the Transfer of Residence Rules.

Until recently import of motor vehicles was permitted to Indian Nationals working abroad and coming to India for permanent settlement provided the applicant had stayed abroad continuously for 1 year and the vehicle had been purchased out of his own earnings abroad. This facility was given in order to enable such Indian Nationals to bring back the motor vehicle which had been in their use abroad. This import facility was however being used quite often for importaing brand-new motor vehicles and selling the same at a premium immediately afte selling the same at a premium immediately after import. The change in rule clearly specifying period of use in CCI & E Public Notice dated 27.2.1990 is intended to prevent such misuse. □

Health

Golden rules for safe food preparation

THE WORLD HEALTH ORGANIZATION regards illness due to contaminated food as one of the most wide-spread health problems in contemporary world. In infants and the elderly, the consequences can be fatal.

The Ten Golden Rules that follow should ensure the preparation of safe food anywhere in the world. Of course, they can if necessary be slightly modified to suit different cultural situations.

1. Choose foods processed for safety While many foods such as fruits and vegetables are best in their natural state, others simply are not safe unless they have been processed. For example, always buy pasteurised as opposed to raw milk and if you have the choice, select fresh or frozen poultry treated with ionizing radiation. When shopping, keep in mind that food processing was invented to improve safety as well as to prolong shelf-life. Certain foods eaten raw, such as lettuce, need thorough washing.

2. Cook food thoroughly – Many raw foods most notably poultry, meats, and unpasteurised milk, are very often contaminated with disease-causing pathogens. Thorough cooking will kill the pathogens, but remember that the temperature of *all parts of the food* must reach at least 70°C, If cooked chicken is still raw near the bone, put it back in the oven until it's done-all the way through. Frozen meat, fish, and poultry must be thoroughly thawed before cooking

3. **Eat cooked foods immediately** – When cooked foods cool to room temperature, microbes begin to proliferate. The longer the wait, the greater the risk. To be on the safe side, eat cooked foods just as soon as they come off the heat.

4. **Store cooked foods carefully**– If you must prepare foods in advance or want to keep leftovers, be sure to store them either hot (near or above 60°C) or cool (near or below 10° C) conditions. This rule is of vital importance if you plan to store foods for more than four or five hours. *Food for infants should preferably not be stored at all.* A common error, responsible for countless cases of foodborne disease, is putting too large a quantity of warm food in the refrigerator. In an overburdened refrigerator, cooked foods cannot cool to the core as quickly as they must. When the centre of food remains warm (above 10°C) too long, microbes thrive quickly proliferating to disease-producing levels

5. **Reheat cooked food thoroughly**–This is your best protection against microbes that may have developed during storage (proper storage slows down microbial growth but does not kill the organisms). Once again, thorough reheating means that *all parts of the food must reach at least 70° C.*

6. **Avoid contact between raw foods and cooked foods** –Safely cooked food can become contaminated through even the slightest contact with raw food. This cross-contamination can be direct, as when raw poultry meat comes into contact with cooked foods. It can also be more subtle. For example, don't prepare a raw chicken and then use the same unwashed cutting board and knife to carve the cooked bird. Doing so can reintroduce all the potential risks for microbial growth and subsequent illness that were present prior to cooking.

7. **Wash hands repeatedly** – Wash hands thoroghly before you start preparing food and after every interruption–especially if you have to change the baby's nappy or have been to the toilet. After preparing raw foods such as fish, meat, or poultry, wash again before you start handling other foods. And if you have an infection on your hand, be sure to bandage or cover it before preparing food Remember, too, that household pets–dogs, birds, and especially turtles–often harbour dangerous pathogens that can pass from your hand into food.

8. **Keep all kitchen surfaces meticulously clean** – Since foods are so easily contaminated, any surface used for food preparation must be kept absolutely clean Think of every food scrap, crumb or spot as a potential reservoir of germs. Cloths that come into contact with dishes and utensils should be changed every day and boiled before reuse. Separate cloths for cleaning the floors also require frequent washing.

9. **Protect foods from insects, rodents, and other animals** – Animals frequently carry pathogenic micro-organisms which cause food borne disease. Storing foods in tightly sealed containers is your best protection.

10. **Use pure water**–Pure water is just as important for food preparation as for drinking. If you have any doubts about the water supply, boil water before adding it to food or making ice for drinks. Be especially careful with any water used to prepare an infant's meal.

Swasth Hind

REHABILITATION OF DISPLACED VILLAGERS– A Plan: by B.C. Muthayya, R.N. Tripathy, M.L. Santhanam and O.N Srivastava. Published by National Institute of Rural Development, Rajendranagar, Hyderabad 500030. First published: 1984. Pages 252. Price Rs. 70.00

This is a study for formulating a rehabilitation plan for tribals who got displaced from 15 villages around Damanjodi in Koraput district of Orissa where National Aluminium Company (NALCO) got located as a sequel to the discovery of a huge bauxite deposit in the area. The NALCO project necessitated displacing tribals and other caste groups from a number of villages in and around Damanjodi. Hence, NALCO commissioned the National Institute of Rural Development, Hyderabad for designing a rehabilitation plan for the displaced persons. The NIRD made a detailed survey of the project area as well as the impact area in order to find out the various possibilities of upgrading the area through improved agriculture, animal husbandry and social facilities.

The study revealed that 610 displaced families could be provided with secondary occupations to be generated through area development programmes. A number of recommendations have been given by the survey report but the major question is: has the government accepted them and acted according to the suggestions given for the rehabilitation of the tribal people, along with safeguarding or providing employment opportunities. NALCO did create a zone of influence with a good deal of symbiotic relationship between the project and the surrounding area. This was designated as the 'impact area' in this study.

It may be recalled that NALCO acquired 3444 ha.of land causing displacement of 2,368 persons or 610 families in 15 villages. Four more villages were partially affected as people there lost some part of their cultivated land, their homesteads remaining intact. Thus, another 178 families needed to be rehabilitated and they had a population of 736 persons. The displaced villagers were allotted house-sites in a nearby area, about 2 km. away from the factory. The government and the NALCO took the view that the homesteads lost by the tribal families were practially of no value as they were small mud huts. As no compensation could be paid for loss of such homesteads, durable houses (partly pucca) could be constructed for them at the coast of NALCO. NALCO. also proposed to provide various types of employment as well as social support by way of health, medical and educational facilities.

Navin Chandra Joshi

GENESIS OF CIVILISATION by Usha Jain, Publisher Usha Muskan, S.D. Area New Delhi, PP-127 Price Rs. 110

History books have a reputation of being chroniclers of life and death of Kings and Emperors, of battles won or lost, of supreme bravery or worst debauchery Yet, there may be exceptions in the form of the late Usha Jains' Genesis of Civilisation'. An author may interpret personal opinions regarding activities of past Monarchs, but it is only the commited academic, who makes monuments into capsules of time, social customs into transition and Kings to dominant role players. Usha Jain has very lucidy brought about the social transition from Gautama Buddha to the First Indian Struggle for Independence in 1857.

The twenty chapters of the book present a fascinating observation of changing social and economic outlook throughout the Medieaval period the Muslim era and the colonial period. What is of particular interest is the unique and mind boggling assumptions and similarities presented by the author. In Chapter 10, 'Afghanisatan, the cultural outpost of India', she writes "Perhaps it is difficult to believe that about 2,000 years ago the country of Afghanistan and Central Asia were permeated with Indian culture through and through. The presence of the Mousterian type flake industry at Balkh and Kaibak (Kera-Kamor cave), polished stone axes at Shamsher ghar and the Chalcolithic pottery at Mundigak, all point to a link between Afghanistan and India right from the pre-historic period. Interestingly, Gandhari, the mother of the Kauravas of Mahabharata, hailed from the present day Quandahar provice of Afghanistan, and Shakuni was the King of Quandahar. Similarly, in Chapter 17, viz 'Nagas-worshipper and the worshipped', she combines mythology with reasoning and out emerges the concept of a special race. The reference of Arjuna marrying Ulupi, a Nagini, also makes interesting reading. It is however a different note that strikes the reader on the first line of the first chapter Much though true it may be, one wonders if her writing was indeed a vision an she had to prove her sayings.

N.N. Chatterjee

Ground water

The Central Government has circulated a model bill for adoption by the State Government for the control and regulation of ground water development Restrictions have been placed on institutional financing of ground water development in areas of excessive exploitation. Other measures to arrest decline of ground water levels in the country include afforestation, contour bunding, nala plugging, construction and renovation of percolation tanks, artificial recharge of ground water and sub-surface ground water and sub-surface ground water augmentation dams. Besides Command Area Development Programme for efficient and economic distribution of water in the fields is proposed to be contrinued in the 8th Five Year Plan also

Development Diary

Relaxation of restrictions

The Foreigners (Protected Areas) Order, 1958 under which the whole state of Sikkim was declared a protected area has been amended so as to exclude certain areas of tourist interest from the purview of the order.

Under the new order certain areas of Sikkim along a line North of the present Sikkim-West Bengal boundary covering the places of tourist interest such as Gangtok, Rumtek, Phodang and Pemayangtse etc. are declared as Restricted Area under the Foreigners (Restricted Areas) Order, 1963. It has also been decided to delegate powers to the following authorities to issue Restricted Area Permits for the places open for tourism in Sikkim: (1) All Indian Missions and Posts abroad. (2) Foreigners Regional Registration offices at Delhi, Bombay and Calcutta, and Chief Immigration Office at Madras (3) Immigration officers at the airports of Delhi, Bombay, Calcutta and Madras. (4) Government of Sikkim—Chief Secretary, Home Secretary, Inspector General of Police, Assistant Director of Tourism, New Delhi, Resident Commissioner, New Delhi, and Assistant Resident Commissioner, Calcutta. (5) Deputy Commissioner, Darjeeling and Deputy Secretary, Home Department, Government of West Bengal, Calcutta.

All these officers are authorised to issue Restricted Area Permits to bonafide foreign tourists-individuals as well as groups-to visit Gangtok, Rumtek and Phodang for a period upto 15 days.

Organised foreign tourist groups consisting of not less than four persons, sponsored by recognised Indian travel agencies may be issued permits upto 15 days for trekking in Zongri area of West Sikkim. They can also visit Pemayangtse for two days excluding journey time. Those who intend to visit Zongri and Pemayangtse have to travel from Calcutta to Bagdogra by air and follow specified land routes to routes to the two places in Sikkim.

No cut in aid to India

The World Bank President, Mr. Barber Conable has said that political development in certain East-European countries will not affect the aid programmes of multilateral institutions. In a meeting with the Union Finance Minister, Prof. Madhu Dandavate in New Delhi, Mr. Conable said that there will be no reduction in the share of aid to India from the World Bank.

The Finance Minister drew attention of the World Bank President to Government's priorities for poverty alleviation programmes and improving the quality of life in the rural areas of the country. He said that the new Government is committed to invest 50 per cent of the avilable resources in the rural areas for generating employment, improving agriculture and helping the landless labourers. In this regard he said that the Eighth Plan will be employment oriented and it will be his Government's endeavour that gains from growth are evenly distributed among all sections of the society.

Mr. Conable said that the World Bank will support poverty alleviation programmes of the new Government. He said that the World Bank is interested in seeing that the even model of development is followed in India resulting in growth of small and medium size industries.

The World Bank President was requested to re-examine the Bank's procedures for reimbursement of expenditure in projects with predominantly local expenditure. It was further clarified that in case of projects with activities spread over large areas, disbursement tend to be slow. Countries which have not taken policy-based loans are, therefore, placed at disadvantage and the projects covering four or five states have the disadvantage as reimbursement of expenditure in such cases takes a long time. It was further, metioned that the revolving fund which is in the nature of an advance, helps only marginally.

The World Bank President drew Finance Minister's attention to the large unutilised committed World Bank aid for various projects in India. He, particularly, mentioned the non payment of dues to NTPC by various States' Electricity Boards and said that energy sector has not been able to utilise much of the Bank's aid. He also commended the intention of the new Government for simplification of procedure and investment rules in the country.

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Yojana: 33 Years ago
(April 21, 1957)

It is strange that in a country like ours which has produced the first woman president of the United Nations, has women ministers in the *Central and State Governments, Governors,* ambassadors, senior civil servants, eminent painters, poets and writers the general status of women should continue to be as low as it is. The vast majority of them are illiterate; many continue to be ill-treated. Not much has been done to break the drudgery of their existence which consists of little besides house keeping, bearing children and being bullied by their men-folk. Despite legislation to the contrary, early marriages without consent or consultation, dowries which cripple parents of daughters and prostitution continue unabated. All this comes out in stark relief in a country like India which, before many others, has given women the right of vote and counts on them to take an equal share in the building of the nation.

Before independence the little that was done for women was done by non-governmental agencies. Official patronage seldom went beyond making pious speeches, giving away prizes or kissing babies at baby shows. Our own Government was somewhat slow in taking up this urgent problem and it was only in August 1953 that the Central Social Welfare Board was set up to help voluntary organisations in their work for women, children and handicapped persons like the deaf, dumb and blind. At the head was placed Durgabai Deshmukh-one of the small band of those who have given India an honoured place in the world of women.

• • •

In a speech delivered sometime ago, Mr. Nehru described India as a jumble of centuries. This description is most apt when it comes to our women because their status ranges from medieval to the modern. It is the job of the C.S.W.B. to telescope the centuries and let the hand that rocks the cradle take its rightful share in shaping the destinies of the country.

• • •

The Chittaranjan Locomotive Works set u another record of production when the 500t locomotive rolled out of the factory on marc 25, 1957, since it was established seven year ago.

The "WG" locomotive is one of the heavies types of broad gauge freight locomotiv weighs about 174 tons in working order an has horse-power of 1,300 at 35-45 miles pe hour.

It may be noted that production in the shop commenced on January 26, 1950 and the firs locomotive, assembled out of importe components, steamed off on November 1 1950. In 1950, three "WG" locomotives wer turned out. Figures for subsequent years are a follows: 1951-16, 1952-30, 1953-54, 1954-86 1955-123, and 1956-150. At present, the shops are manufacturing 14 "WG" locomotives pe month.

The workshop was set up for a targe production of 120 average size locomotive per year. This figure was reached as early a May 1954 and since then Chittaranja Locomotive Works is breaking the old record every month and thus contributing toward India's self-sufficiency in motive powe requirements. This steady and spectacula progress has been mainly due to the initiative drive, acumen and team-work of the 4,400-od workmen in the Factory. The 'incentive bonus introduced in the shops has also contribute in a large measure to this enhanced rate o production.

• • •

The March 24 issue of YOJANA said:

"The uncomfortable foreign exchange positio of last year was due more to a fall in curren earnings rather than increase in the import o capital goods."

The above statement is quite opposite t what was said on the subject in the "Whit Paper on Budget, 1957-58", from which I an quoting some extracts below:

"The impact of rising developmental activit in 1956 was felt most conspicuously o Balance of Payments. Imports increase sharply in 1956 while exports declined slightly"

The difference between the two statement appears to be so wide that I am motivated t draw your attention to it.
6.4.1957.

Suryanarayana Kuch
New Delh

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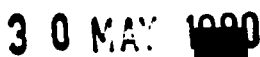
yojana

• WORKERS IN MANAGEMENT

• EXIM ANALYSIS

• FOREIGN INVESTMENT

VOL. 34 : NO. 8 MAY 1-15, 1990 Rs. 2

Employment and Training Programmes for women

An inter-Ministerial Committee would be set up to review and suggest ways and means of augmenting employment and training opportunities for women in the Eighth Plan. The thrust of the strategy for employment generation would be for the poorest of the poor women through schemes of rural development and speical schemes for the urban areas. There would also be a special emphasis on giving assistance to Scheduled Castes and Scheduled Tribes women again taking the poorest as the target group. The inter-ministerial meeting made some thread bare analysis. It was noted that as per the 1981 census, of the 24.9 crores economically active female population (excluding children upto 6 years) only 4.6 crores are employed. In comparison to the total 26.9 crores economically active men (excluding children upto 6 years), 18.2 crores are employed. On a rough estimate, of the 8.34 crores rural women below the poverty line the various employment generating programmes of rural development have covered, on a one time basis, just 1.12 crores women. In the urban areas, women in urban slums on a modest estimate number 2.24 crores. For this group, virtually no employment programmes have been implemented apart from the few programmes being run by the women's voluntary organisations, women's development corporations and the Department of Women and Child Development. The Live registers reveal that about 35.63 lakh literate females were seeking employment in 1988 of which 28.62 lakhs are matriculate/ higher secondary level but the percentage of placements has shown a declining trend from 7.7 per cent in 1975 to 4.6 per cent in 1988.

In the allied sector of credit facilities for self-employment for women only 1.1 per cent of the total number of cooperatives are meant for women. Successive census reports have also revealed that while employment of women in the organised sector remains more or less static between 10.9 per cent in 1961, 11 per cent in 1971 and 12.2 per cent in 1981, in the unorganised sector the participation of women declined from 32.7 per cent in 1961 to 20.8 per cent in 1981. The total employment figures reveal a further decline from 31 per cent in 1961, 17.4 per cent in 1971 and 20 per cent in 1981.

National institution for extension workers

The government has approved a proposal to set up an apex national institution to train the agricultural extension workers and other personnel for effective management of agricultural development system. speaking at the General Council Meeting of Agricultural Extension (MANAGE) in New Delhi the Deputy Prime Minister and Agriculture Minister, Mr. Devi Lal said, the government has decided to have National Training Policy for staff engaged in different areas of agricultural mangement. This would enable upgradation of technical skills of extension and other personnel for rapid and equitable agricultural development in the country.

Comprehensive crop insurance scheme

The Government proposes to introduce a Comprehensive Crop Insurance Scheme to be implemented throughout the country from Kharif 1990 onwards. The steps taken for effective implementation of Comprehensive Crop Insurance Scheme includes low rates of premia, subsidization of premia beyond 50 per cent equally between States and Central Government for small and marginal farmers and inclusion of foodgrains, pulses and oilseeds which are normally grown under rainfed conditions.

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YOJANA seeks to carry the message of the plan to all sections of the people and promote a more earnest discussion on problems of social and economic development. Although published by the Ministry of Information and Broadcasting YOJANA is not restricted to expressing the official point of view. YOJANA is issued every fortnight in Assamese, Bengali, English Gujarati, Hindi, Kannada, Malayalam, Marathi, Punjabi, Tamil, Telugu and Urdu.

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Participative Management Concept and [illegible]

A Labour Correspondent

There is little dispute about the usefulness of worker's participation in management as it aims at cementing the trust between the employer and the employee and bettering performance. The author traces the gradual development of the idea and reactions of the ruling governments to it. He notes that though some progress was noticed in the implimentation of the scheme in public sector units, on the whole it is yet to make a real impact because of a lack of participative culture. Hė suggests, among other things, the need for a legislation on right to information and consultation with the concerned through the evolution of planning committees for effective implimentation of the scheme.

IT IS ALMOST 15 YEARS since the concept of workers' participation in the management of industry and business gained acceptance in principle in India. There were hardly two opinions that a meaningful scheme of workers' participation in management would promote harmonious management-employee relations and also be in the larger interests of the economy as a whole. This would also enable this country to keep abreast of modern concepts of industrial relations the world over. The first attempt to give flesh and blood to the concept was taken by the Central Government in October 1975, when the then Union Labour Minister, Mr. K.V. Raghunatha Reddy (now Governor of Tripura), announced the launching of a scheme of workers' participation in management. The first scheme was like a trial baloon. Its basic objective was to devise a system whereby mutual trust and confidence was created between workers and managements. Once trust was created, workers would be inclined to involve themselves more actively in the work process, and motivated to give their best. The success of the scheme—entirely voluntary in nature and without any teeth at all—depended largely on the realisation by managements that workers could contribute significantly to the improvement of the work process and on the management's initiative and interest in encouraging workers' participation.

Initially the scheme was confined to manufacturing and mining units run departmentally by the Government or in the public, private or cooperative sector. Only units employing 500 or more workers were brought within its scope. It was flexible enough to allow for variations to suit local conditions not only in different parts of the country but in different types of establishments.

But enough care was taken by the Government at the time to ensure that the participative machinery did not become a bargaining committee. As some schemes of workers' participation in very elementary forms were already in vogue in some commercial and service organisations in the public sector, the managements were left free to evolve patterns suited to their individual needs.

The two-tier scheme was applied to local operating units of commercial organisations or service organisations in the public sector, employing at least 100 persons. A unit employing fewer than 100 persons could also introduce it at its option. It provided for unit councils at the unit level (in case a unit is too small there could be a common council for several units within a geographical area such as for several branches of a bank in a city) and joint councils at the division or region level or in particular branches as deedmed necessary.

On November 10, 1976, the late Prime Minister Indira Gandhi declared at a meeting of the National

productivity Council that she attached the greatest importance to workers' participation in industry at the shop floor and plant levels. She said her genuine interest in the concept was proved by the inclusion of participative management as one of the items in the 20-point programme launched at her instance, and expressed the hope that workers' participation "will help productivity and deepen our democracy".

On January 5, 1977, the scheme was extended to new areas. The organisations/establishments brought within the scope of the revised scheme were hospitals, post and telegraph offices, railway stations and booking offices, road transport undertakings, state electricity boards, banks, insurance companies, all Central and State financial institutions, educational and research institutions, air and inland water transport, handicrafts and handloom export corporations, distribution, commercial and marketing bodies such as the State Trading Corporation and the Minerals and Metals Trading Corporation, municipal services, milk distribution, irrigation schemes, tourist organisations hotels and restaurants, catering establishments of public amusement, etc

The net was cast so wide that the variety and size of institutions brought within the scope of the participative management scheme made it unweildy It was stated then that there was no need for an apex body at the board of management level for the time being. The formation of apex bodies would be considered in the light of experience in unit level joint councils.

It was also decided that unit level councils would have six representatives each of workers and six of employers. The managements were free to select the workers' representatives in consultation with, but not necessarily with the concurrence of recognised unions. Stress was laid on nominating suitable and experienced workers. Trade union functionaries who were not employees of the company concerned were barred.

In case it was not possible to select workers' representatives in consultation with recognised or registered unions, resort could be had to the secret ballot or any other method suited to local conditions. The chairman of the joint council would be a management nominee, and all its decisions would be made on the basis of majority vote. But neither the management nor workers would be free to refer to any other authority matters undecided by joint councils at the plant level. Every decision was to be implemented within a month unless otherwise stipulated at the decision making stage itself

The tenure of unit councils was fixed as two years at a time. Members chosen in mid term would vacate

What is May Day all about ?

The first day of the month of May is recognised by working people all over the world as a sacred day. The origins of May Day lie in the struggle of the working people for shortening the hours of work during a 24-hour period. There was a time when men and women had to spend 16 hours or more every day at their place of work.

In the course of time awareness grew that 16 hours of work for wages were far too many in a single day. Over a period of time the working day got reduced to 10 hours. It was also accepted by employers that their workers deserved a paid holiday at the end of every six working days. The debate then began on what should be considered a normal working day—10 hours or eight.

In the 1880s the working people of the United States of America, which had by then emerged as the world's leading industrial country, became restive and started agitating for reducing the working day to eight hours. The shifting of the headquarters of the first International Workers' Association from London to New York in 1873 gave a fillip to the demand for reducing the working day to eight hours.

In the late 1860s an organisation known as the Knights of Labour was formed in Philadelphia. After 10 years of slow growth it emerged as a national organisation in 1878. At a convention that year the Knights of Labour adopted a platform which summed up the demands of the working people. One of these was eight-hour day.

On the initiative of the Knights of Labour an agitational programme was launched at Chicago on May 1,1886. During demonstrations at Haymarket Square in Chicago on May 4, 1886, a bomb explosion occurred. The police opened fire which resulted in heavy casualties.

The Haymarket Square demonstrations were perhaps the first organised struggle for the improvement of living and working conditions of wage earners. Since the movement had begun on May 1, 1886, the first day of the month of May came to be commemorated as workers' day across the world.

In India the first recorded observance of May Day was in 1923 in Madras. The late M. Singaravelu Chettiar had on that day organised a rally on the Triplicane beach in Madras. In his speech Singaravelu Chettiar said,Indian labourers should celebrate May Day in a manner befitting their position and signifying their co-operation with their comrades in other parts of the globe.

From then onwards working people all over India, like their brethren elsewhere in the world, observe May Day every year as a day signifying the beginning of the struggle of working people for a better life.

office at the end of the term. Meeting were to be held as often as necessary but not less than once a month. The council's primary concern would be overall improvement in the operation of an undertaking but it will be free to discuss any other matter which may have a bearing on improvement of customer service. Plant level joint councils would deal with unresolved matters referred to them by unit councils as well as matters which have a bearing on other branches or on the enterprise as a whole, improvements in general conditions of work, better customer service, etc.

Second instalment

When Mr Raghunath Reddy unfolded his second instalment of the workers' participation scheme in 1977, there was lot of drum beating about the "striking gains" of the first scheme introduced 14 months earlier. Nearly 1,500 State and Central undertakings were stated to have enforced it, even though it was entirely voluntary. The results were said to be encouraging. Even establishments with fewer than 500 workers were willing to give it a trial.

The Second instalment was not very dissimilar from the first one. All it did was to bring in a new set of establishments within its ambit. But the implementation of the first scheme led to certain anomalies. In certain cases improved production and productivity hurt the interests of workers. The Labour Minister of a State Government had the honesty to tell the Centre that the lopsided scheme of participative management had enabled two employers in his State to enforce cutback in production to avoid stockpiling and to lay off a large number of "surplus" workers. So meaningful was workers' participation in management that their plea for a price cut to wipe off stocks carried no weight with the management. Some industries stopped the incentive bonus to avoid a glut. In the then prevailing climate of mutual backstratching some undertakings created an illusion of workers' involvement at the top decision making level by nominating a trade unionist or two to their boards of directors. There were of course a few public enterprises– National Instruments Ltd. and Hindustan Antibiotics Ltd. for instance– which allowed workers to elect their own representatives in management boards for full participation in the policy and decision making. Once the fetters of emergency were dismantled, the inadequacies of the scheme began to loom large. While the trade unions were anxious that they should have an effective voice in managing the affairs of their enterprises with which their own prosperity was inseparably linked, they felt there were far too many loopholes in the patterns evolved under the cloak of emergency.

When the Janata Party came to power in March 1977, the scheme of workers' participation in management introduced by the previous Government was virtually shelevd. It set up an 18-member committee consisting among others of trade union and employers' representatives to inquire into the extent to which the concept of trusteeship in industry could be given shape in the proposed scheme of workers' participation. It pose some fundamental issues to the trade unions. In th process however it threw the baby away with th bathwater, and itself collapsed before it could introdu a fresh scheme. Among these issues were: whether scheme of workers' participation is necessary an whether its functions should be enlarged to involve mor workers progressively in all management functions suc as the purchase of inputs, marketing, pricing, investme policies, personnel, etc.? Whether participation shoul be at the shop floor or plant level only or also at the boar level? Should workers' directors have the right to prepar separate reports as different from the board's gener report? What should be the criteria for the selection workers' representatives at different levels of th partiticipative structure? Should recognised unions hav the sole right to nominate or the workmen in differe constituencies (shops, plant, board) elect their ow representatives directly?

Equity holdi[n]

The Janata Government also posed the issue that sinc sharing information is one of the critical factors i developing healthy relations between workmen an management, the two parties may jointly prepare soci and economic statements on matters like variou components of pay packets of different categories workers reflecting money wages and fringe benefit absenteeism, labour turnover, productivity, capacit utilisation and so on.

If workers' participation is provided for in law whether it would be necessary to continue it in it present form the works committees which exist i several industries—steel among them—for many years In what manner should workers be enabled t participate in the shareholding of an undertaking. I other words whether the worker should have a share i the equity of his undertaking?

Mr. George Fernandes, the Industry Minister in th first Janata Government, talked of a workers' sector i industry. He suggested that all sick units should b turned over to workers and left to their managemen Later the Janata Government set up a committee to g into the matter, though nothing came out of it Th Congress (I) Goverment in the early 1980s enacte legislation making it obligatory for joint stoc companies to set apart a certain portion of their ne equity issues for their employees, giving them th pre-emptive right of purchase or refusal. Th committee set up by the Janata Government in th 1970s had been asked to inquire into the exent t which the concept of trusteeship in industry could b given shape in the propsed scheme of worker participation in management.

New meanin[g]

Three years after the Congress (I)'s return to powe it tried to give a new meaning to the concept c workers' participation. On December 30, 1983, th

Government adopted a resolution recasting the workers' participation scheme and giving it a new look. There was no basic difference in the scheme of December 1983 from the earlier one. Only peripheral changes were made.

It was made applicable to all public undertakings of the Central Government barring those specifically exempted by the Labour Ministry and the administrative Ministry concerned It provided for joint councils up to the board level. But the modalities of constituting such councils were left to be determined by the management in consultation with the Labour Ministry.

The councils at the shop floor and the plant levels would consist of representatives of both skilled and unskilled workers. The number of workers' as well as managements' representatives on such councils would be five to ten each depending on the size of the workforce Wherever women constitute 10 per cent or more they would have representatives on such councils. Women representatives would be particularly entrusted with the protection of their rights.

The Government defined the functions of the shop floor council as production, inventories and stores, removal of causes that lead to losses of production, security, improvement in cleanliness, work programme and its implementation, design, collective work, welfare masures and any special matters connected to the shop.

At the plant level, productivity, monthly targets, stores, inventories, house keeping, machine utilisation would be the main tasks. As regards financial powers, the plant council could go into balance sheets, production costs, financial results, evaluation of earnings, workers involvement in labour productivity, etc It could also look into absenteeism, special problems of women workers, training of workers, social security, welfare, the environment, etc

At the Board level workers' representatives would participate in all activities of the board, and assess and evaluate the work of the plant and shop floor committees. The secretary of the joint council would be chosen through discussion between the parties through consensus but if no consensus is reached, it would be referred to a higher body. Any change in the functioning of joint councils was to be decided by consensus No legislation was enacted but it was decided to enforce the scheme in public undertakings. Private enterprises would also be encouraged to implement it. Laws might be framed later but not immediately in the light of the experience gained, declared the then Minister.

Review

A review of the 1983 scheme showed that some public enterprises had introduced it in right earnest. Such enterprises included the Steel Authority of India Ltd , Bharat Heavy Electricals Ltd and the Cement Corporation of India Ltd. The then Union Labour Minister, the late Mr. T. Anjaiah, wrote to the State Chief Ministers and Labour Ministers requesting them to give suitable instructions to heads of public enterprises in their jurisdiction to ensure the speedy and effective enforcement.

The progress in implementing the scheme was reviewed at a meeting held on May 25, 1984, under the presidentship of the then Labour Secretary, Mr. B.G. Deshmukh. Without setting a time limit, it recommended that all public sector enterprises should implement the scheme as soon as possible. On the question of evolving a mode for selection of workers' representatives, it was agreed that the existing arrangements either under law or prevailing practices, which have been working satisfactorily between management and trade unions, might continue to be followed. The meeting also felt that no uniform pattern of participative forums need be imposed. Managements were advised to consult trade unions and evolve through a consensus the mode of representation of workers at various forums.

The meeting also came to the conclusion that if it was not possible for the managements and unions to evolve through consensus the method of workers' representation, the government's labour machinery would help the managements of such units to evolve a decision through consensus. The Labour Ministry set up a monitoring unit to oversee the implementation of the scheme. The scheme however evoked only partial response and only about 100 Central Government undertakings out of a total of nearly 300 actually implemented it.

Contentious Issues

The Government itself slowed down on the scheme, because its attempts to make drastic changes in labour legislation met with stiff opposition from trade unions and opposition parties. One of the most contentious issues was the method of selecting the bargaining agent. Another was the fetters the Government wanted to impose on the right to strike

It hardly needs to be emphasised that the success of any scheme of participative management rests on the environment in which it is implemented. In both the public and private sectors in India there is an absence of participative culture. The old culture of conflict of interests leading to confrontation is harmful both to workers and employers. A new culture in industrial relations based on the commonality of interests has to be introduced in both the public and private sectors.

It may be of some comfort to policy framers in the field of industrial relations that even in Great Britain, which provides inspiration to many and a democratic concept, participative management is still an ideal yet to be fully attained. The problem has come to the fore in the wake of major changes in labour legislation by the Thatcher Government. The Labour Party, which is wedded to give workers a fair deal, has come out with a document entitled 'People at Work' It underpins the shortcomings of the Tory legislation on

(Contd. on page 30)

Import policy of India 1990-93
An Overview

Dr. Sada Shankar Saxena

In this analysis, the author gives a detailed account of implications of the steps announced. According to him, a balanced approach has been adopted to meet the requirements of trade and industry to attain the broader objectives. He, however, admits that though the Import Policy has added new dimensions to the EXIM Policy, there is need for caution in the implimentation stage, particularly in the thrust areas.

'IMPORT POLICY' IN THE context of India's economic development scenario, is an instrumentality, well ingrained into the intrinsic planning processes of a mixed economy, where the essential imperatives would include building foreign exchange reserves, boosting exports and keeping a critical eye on the Balance of Payment situation.

Not surprisingly, therefore, the new Import Policy has been designed against the background of depleting foreign exchange reserves, worsening balance of payment situation and dire need for accelerating the pace of growth in the export sector. The Policy, inter-alia, aims at (a) encouraging rapid and sustained export growth including export of services, (b) facilitating availability of necessary imported inputs, (c) simplifying and streamlining import/export procedures, (d) providing support to recognised indigenous research and development institutions and (e) promoting efficient import substitution.

In order to achieve the objectives, a fairly balanced approach has been adopted to genuinely meet the demands of all the segments of the trade and industry engaged in the export promotion efforts of t[he] country by effecting appropriate modifications a[nd] improvements in the Policy. The main thrust of t[he] new Policy is squarely on export promotion based [on] industrial growth and expansion through modernisati[on] and technological upgradation.

The new Import Policy is a serious effort put in [by] all those who are in one way or the other connect[ed] with the export effort of the country. The credit mig[ht] go not only to the government but to the trade a[nd] industry and economic thinkers alike.

One may like to look at some details. For instan[ce] barring two banned items in Appendix 2A, all ite[ms] required for export production in terms of capit[al] goods, raw materials, components, consumabl[es] tools, instruments, spares etc can be imported w[ith] or without licence. The actual users have been tak[en] care of in the new Policy to avail maximum benefit [of] the liberal provisions made therein. They can me[et] their requirements of capital goods given [in] Appendix IB on OGL and that of non-OGL capit[al] goods through licences and also against t[he] Additional Licences granted to Export Hous[es/] Trading Houses. They can also procure such capit[al] goods as nominees of merchant exporters or from t[he] Star Trading Houses who are eligible to imp[ort] against their Special Additional Licences for sup[ply] to actual users. As regards the imported inp[uts] required for production purposes, particularly t[he] restricted, limited permissible and canalised ite[ms] various options have been provided for such act[ual] users. They can import them under Supplementa[ry] Licensing Scheme or register their requireme[nts] with the canalising agencies concerned with t[he] import of such items or through IRMAC facil[ity] granted to Public Sector organisations. Su[ch] requirements may also be taken care of und[er] flexibility provision of REP Licences granted [to] registered exporters and the Additional Licenc[es] granted to Export Houses/Trading Houses, as the[se] licences are freely transferrable. The items listed [in] Appendix 19 can also be imported by actual use[rs] (Industrial) to the full value of additional licenc[es] granted to Export Houses/Trading House subject [to] actual user condition.

The views expressed are mainly of an academic nature and not the official version.

For the export-oriented industry, the new Import Policy embodies liberal provisions to effectively meet their genuine needs in terms of capital goods and required inputs in so much as they need for export production. We may now take a closer look at certain salient features of the new Import Policy.

The structure and framework of the Import Policy as well as its 3-year duration has remained unaltered. The need for a stable long-term policy has also been recognised as an essential prerequisite for sound investment decisions for ensuring sustained economic growth in the years to come.

Despite the much publicised balance of payment situation, the new Policy has maintained its liberal and licence free approach to facilitate importation of production inputs by the industrial sector, contrary to the expectations of certain sections of opinion in India. Eighty two capital goods have been added to the list of capital goods allowed for import under Open General Licence (OGL) which mainly consist of electronic instruments/machinery, textile machinery, food processing machinery and sea food machinery. Seventeen capital goods on the other hand have been shifted from OGL list to restricted list of capital goods in view of their indigenous availability and quality. Fifty-five items of raw materials, components and consumables which mainly include all high speed steel items have been added to the OGL list for import by actual users after taking into account the domestic production and demand. Four items of life saving equipment have been included in OGL. Five important items of raw-materials–tin, Dapsone di-amino diphenyl sulphone, streptomycine sulphate, paraxylene and copper cathodes— have been decanalised.

The present Policy (1990-93) includes over 1300 items of capital goods, 132 items of gems and jewellery, machinery, equipment, testing apparatus, tools and implements as per list 1 of Appendix 6 and over 1600 items of raw materials, components, drugs and medicines etc as per lists 2 to 11 of Appendix 6, which are allowed for import under OGL. The new Policy has, therefore, provided for liberal access ot import production-inputs for expanding industrial base in the country.

By simplifying and streamlining the procedures for import licensing and export promotion, the new Import Policy has paved the way for the economy to strive for a major thrust in the export effort. A "total" approach has been adopted to export activity as a whole. Even the exports of Appendix 12 items which were hitherto ineligible for export incentives have been made eligible for grant of ad-hoc licences at the rate of 5% of the f.o.b value of exports in the preceding year. The status of deemed exports has been extended to supply of consumer durable items and vehicles to diplomatic personnel and members of trade missions where such supplies are paid for in free foreign exchange.

The new Import Policy has further simplified the Import Replenishment Licensing Scheme. The shopping list in Appendix 17 has been dispensed with except for gem and jewellery items listed in Appendix 17 Part II. Appendix 17 Part III contains export-linked import items. Replenishment rates have been so modified as to provide necessary encouragement to exports of higher value-added products. Further, the number of replenishment rates has been reduced to just four basic rates e.g. 5%, 10%, 15% and 20%. The Policy also provides option to the Replenishment Licence holder either to import raw materials, components, consumables and packing materials listed in Appendices 3 and 5A as are relevant and related to the product exported (Para 185 (1)) or under full flexibility extended to REP Licences may import any other items of raw materials, components, tools, consumables and packing materials listed in Appendices 3 and 5A and instruments other than those given in Appendices 1A, 2B and 8, provided the import of single items of components and tools does not exceed Rs. 10 lakhs (Para 192 (1)). The Policy also provides that in the case of certain identified export products, inputs that are otherwise restrictive and also sensitive can be imported against REP licences issued therefor (Para 185 (3))

Major steps

Another significant improvement in the REP Licensing Policy has been the enhancement in the minimum rate from 3% to 5% in the case of export products which are neither included in Appendix 12 nor Appendix 17 (Para 184 (4)). The transferability of REP Licences will act as an instrument of export promotion.

A third category of Star Trading Houses with a minimum average annual NFE earnings of Rs. 75 crores in the base period of preceding three years has been added to the Export House/Trading House Scheme. The other major change in the policy provisions for Export House/Trading House under the new Policy relates to the enhancement of the minimum qualifying export turn over limit in terms of NFE earnings from Rs. 3 crores to Rs. 5 crores for Export Houses and Rs. 10 crores to Rs. 20 crores for Trading Houses. The flexibility limit on Additional Licences has also been raised from 10% to 15% for Export Houses and 15% to 20% for Trading Houses. Since the Additional Licences are freely transferrable and will enjoy flexibility in their utilisation, the holders of such licences can import "Limited permissible" and "canalised" items without any actual user condition. This will act as an instrument of export promotion.

The Star Trading Houses are made eligible for Special Additional Licences @ 15% of the NFE earned on the total eligible exports made in the preceding

licensing year. These licences are valid for import of Appendix 3 and 5A items for supply to actual users, as these licences are non-transferrable.

A significant improvement has also been effected in the Duty Exemption Scheme by adding the Blanket Advance Licensing Scheme for registered manufacturer-exporters having a minimum average NFE earnings of Rs. 10 crores during the preceding three licensing years. This scheme is primarily based on the premise of trust and good faith on such leading exporters who are expected to abide by the spirit in which the Scheme has been introduced. The introduction of Blanket Advance Licensing Scheme will certainly help in generating additional exports.

The Provision made in the new Policy vide Para 234 (i) (ii) linking exports to Rupee Payment Area Countries under Advance/Blanket Advance Licence to General Currency Area countries, has since been amended. The amended provision has now left the export obligation entirely to the judgement made in "public interest" by the CCI&E on case to case basis.

The new Import Policy includes a provision for import of packaging materials against Customs Clearance Permit (CCP) where such materials are supplied free of cost. The Bank Guarantee and Legal Undertaking provisions under the Duty Exemption Scheme have also been simplified.

In order to facilitate the process of modernisation and technological upgradation of the Indian industry as a whole, the Policy for import of capital goods has also been given the required orientation under the new Import Policy. The list of capital goods allowed for import on OGL basis has been enlarged and the existing provision permitting units from one industrial sector to import capital goods on OGL basis listed under other industrial sectors in Appendix 1B, if considered necessary, has been retained. This will enable the industry to fruitfully utilise the OGL provisions for import of capital goods.

Liberal provisions

Liberal provisions for import of capital goods by the export sector have been made in the present policy. Besides the flexibility provision for import of non-OGL capital goods including instruments and accessories thereof and the balancing equipment by the manufacturer-exporters against their own REP licences without recommendation from concerned sponsoring authority, indigenous clearance and advertisement procedure, the actual user (Industrial) is also allowed to avail of this flexibility as a nominee of the merchant exporter, provided such Actual User is the manufacturer of the product exported by the merchant exporter. Another important provision made in the new Policy relates to the import of non-OGL capital goods by registered manufacturer-exporters upto a maximum cif value of Rs. 10 crores at a concessional rate of Customs Duty of 25% of cif value of the capital goods imported subject to export obligation.

Under the flexibility provision, import of non-OGL capital goods upto Rs. 15 lakhs is also allowed against additional licences granted to Export Houses and Trading Houses (Para 220 (3) (iii)). Star Trading Houses are also eligible to import non-OGL capital goods upto a value of Rs. 50 lakhs for supply to actual users (Para 227 (3)).

The special facility for export-oriented industries for import of capital goods purely on the basis of "Price" and "delivery" considerations, notwithstanding the indigenous availability of such capital goods, has been retained in the new Policy (Para 43). This facility is subject to the condition of exports of at least 25% of annual production with a minimum export turnover of Rs. 1 crore or units exporting at least to the extent of Rs. 10 crores.

The value limit for waiver from advertisement procedure for import of capital goods have also been enhanced from the existing Rs. 25 lakhs to Rs. 40 lakhs, keeping in view the price inflation and exchange fluctuation. The provision for import of second-hand OGL capital goods has been withdrawn.

For technological upgradation and modernisation the provision under "Technical Development Fund" Scheme has been raised from Rs. 2 crores to Rs. 3 crores under the new Policy. Besides, the value limit for import of designs and drawings have also been increased from Rs. 30 lakhs to Rs. one crore under the Technical Development Fund. Liberal provisions have also been made for import of prototypes, samples, technical designs, drawings and other technical documentation in the new Policy.

User-oriented

As regards the policy for import of raw materials, components and consumables by actual users, a new scheme of "Automatic Licensing" has been introduced in the new Policy. Under the scheme, limited permissible and restricted items upto 50% of the value of previous year's Supplementary Licence can be imported while the regular Supplementary Licence application is made to the sponsoring authority for certification of essentiality and consideration by the Supplementary Licensing Committee. This provision will enable the actual users to continue their production operations uninterrupted for want of critical inputs.

Under the "Supplementary Licensing" scheme while the flexibility limit upto 10% of the licence value for import of any items from Appendix 3 has been retained, the value limit for import of a single item has been raised from Rs. 2 lakhs to 3 lakhs and the maximum aggregate value limit from Rs. 20 lakhs to 30 lakhs. Besides, the repeat operation of Supplementary Licences has been retained in the new Policy.

The Industrial Raw Material Assistance Centre (IRMAC) Scheme as provided by Para 127 in the new

Policy is being simplified so that the release of raw materials and components to bonafide actual users can be made without insisting on production of valid Actual User Licences.

While the list attestation procedure for import of electronic components appearing in OGL list has been dispensed with, the import of non-electronic OGL components by actual users under the Phased Manufacturing Programme of indigenisation has been retained in the new Policy.

The provisions regarding import of computer systems have been somewhat relaxed and the Software Export Scheme through import of computer systems subject to export obligation has been retained.

The process of decanalisation continues under the new Policy. Five important items have been decanalised. Direct import of canalised items are also permitted under REP/Advance/Blanket Advance/ Special Imprest/Additional/Special Additional licences. In addition, the CCI&E may also grant licences for direct import of canalised items subject to "No Objection Certificate" (NOC) by the canalising agency.

As regards import of "spares", an important provision has been made in the present Policy which provides an option to the applicant for restricted spares licence, after-sales service spares licence and licence granted to Indian agents of foreign machinery manufacturers to apply for a "Consolidated Licence" covering their entitlement for the 3-year period of the Import Policy (1990-93), subject to utilisation of one-third value in any one year.

The manufacturers of machinery and equipment listed in Appendix 9 will be eligible for grant of after-sales service licence at the enhanced rate of 3% of the cif value of imported components in the last three financial years.

In the new Policy the flexibility limit for import of spares, accessories and toolings for the maintenance and operation of the capital goods has been raised from 10% to 15% within the overall value of the capital goods licence. The value limit for import of spares under OGL by the owners of imported motor vehicles has also been enhanced from Rs. 5000/- to Rs. 10,000/-. Similarly, the value limit for import of spares by consumer electronic service centres has been raised from Rs. 10,000 to Rs. 25,000/- per year against surrender of REP/Additional Licences.

Special provisions

Special policy provisions have also been made for import of capital goods, raw materials, components, consumable and spares other than those in Appendix 1A and canalised items by government departments, departmentally run undertakings and public sector enterprises under OGL on the basis of release of foreign exchange. Prior clearance from indigenous angle is necessary for raw-materials, components, consumables and spares listed in Appendices 2B and 3 and for capital goods other than those given in Appendix IB. For modernisation of steel projects at Durgapur, Rourkela and Burnpur, a provision has been made for import of capital goods under OGL on the basis of release of foreign exchange and approval by the Empowered Committee. Imports under OGL or against Supplementary licence/special imprest licence by Indian bidders for execution of contracts from Oil & Natural Gas Commission, Oil India Ltd. Gas Authority of India Ltd is restricted. to foreign exchanges allocation made to ONGC, OIL or GAIL, therefor.

For the non-resident Indians the value limit for import of licensable capital goods under OGL has been raised from Rs. 35 lakhs (landed cost) to Rs. 35 lakhs (cif).

The growing importance of export of services in earning foreign exchange has been recognised for the first time in the new Import Policy. A separate Export Promotion Scheme for encouraging service exports like computer software exports, computer consultancy services, management consultancy services abroad relating to various utility managements, has been incorporated in the new Policy. Such exports have been made eligible for REP licence at the rate of 10% of the net export proceeds realised.

The new Policy also includes, among others, provisions for import of office machines, books, dry fruit, cloves, cinnamon/cassia, nutmeg and mace, construction equipment on re-export basis, etc.

Adequate safeguards have also been provided in the new Policy to avoid misues of any of the various provisions made in the Policy The constitution of the Export Facilitation Committee with a view to provide a high level inter-ministerial clearing house to deal with problems of exporters relating to pre and post shipment stages is expected to help in tackling the problems confronted by the trade and industry in their export promotion.

In short, the Import Policy has certainly added some new dimensions to the Import Export Policy approach. All the same, one may have to remain perceptive about certain issues which might need special attention in the context of thrust areas for meeting the current BOP situation. This remark is not necessarily in the nature of a mere homily, but more necessitated out of the sheer reality of the Indian trade scene- so far as the 'nuts' & 'bolts' of implementation are concerned. Hopefully thus many of the innovative aspects of the new Policy would impart pragmatism in the actual working, so that the purposes for which they have been conceived get fully optimised. □

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Child Labour in India

Dr. Narendra Prasad

Inspite of constitutional provisions and major legislative enactments child Labour in India is on the increase. Poverty, illiteracy and ignorance of parents are the main reasons for the rampant prevalence of this malady. Eradication of the problem, at the present stage of economic development is not feasible, the author feels. What is required, therefore, is to make the working conditions of child labourers better until we are in a position to gradually eliminate the evil totally.

CHILD LABOUR IS NOT a new phenomenon in India. From ancient times, children were required to do some work either at home or in the field along with their parents. However, we find in Manusmriti and Arthasastra that the king made education of every child, boy or girl, compulsory and Kautilya prohibited the trade of children, who were purchased and converted to slaves by some people. The problem of child labour was identified as a major problem in the 19th century when the first factory was started in mid 19th century and legislative measures were first adopted as early as 1881 Since independence there has been several laws and regulations regarding child Labour

Children constitute the most important asset of any nation. Each child is an asset to the society, and the future welfare of society is closely related to the welfare of the child. Jawaharlal Nehru once said .. 'But somehow the fact that ultimately everything depends on the human factor, gets rather lost in our thinking of plans and schemes of national development in terms of factories and machinery and general schemes. It is all very important and we must have them, but ultimately of course, it is the human being that counts, and if human being counts, well, he counts much more as a child than as a grown up". Children are the future of the nation. They are flowers of our national garden. It is our duty to protect these flowers of our garden. R.K. Maheshwari, M. Karunakaran and B.D. Gupta defined Child Labour as any worl. done by the children in order to economically benefit their family or themselves directly or indirectly, at the cost of their physical, mental or social development. Child is the most lovely creation of nature to nurture in roses but when circumstances force them to hard labour, so as to earn livelihood from early childhood, disrupting their optimal development- the nation suffers a net loss of his capacity as mature adult.

Child Labour is a global problem. It is more common in underdeveloped countries. Child labour, by and large, is a problem of poor and destitute families, where either parents cannot afford education of their children or have to depend on the earnings of their children. The prevalence of child labour is a blot on the conscience of society. It is a national disgrace that millions of children in this country have to spend a major part of their daily routine in hazardous works while millions of youth and able-bodied men go without employment. The problem of child labour in India may seem to result from traditional attitudes, urbanisation, industrialisation, migration, lack of schools and so on. However, its causes are extreme poverty and the fact that agriculture is the main occupation of the majority of the population. Alfred de Souza and UNICEF have observed that India is said to have the largest number of world's working children. The Census report of 1961 reported 14.5 million child workers which in 1971 declined to 10 7 million and rose again in 1981 to 13.6 million. Over 90% of them live in rural areas. The participation rate in rural urban areas is 6.3% and 2.5% respectively.

The National Sample Survey of the 27th round gives a figure of 17.4 million, whereas All India Survey of Operation Research Group 1983 estimated 44 million child workers in India. According to a recent report, 17 million children in our country are engaged in earning their livelihood. This constitutes 5% of the total child population of the nation and about 1/3 of the total child labourers of the world.

Problems

In India working children are engaged in different organised and unorganised sectors viz.-rural and urban In rural sector children are engaged in fields, plantations, domestic jobs, forestry, fishing and cottage industry. In urban sector they are employed at houses, shops, restaurants, small and large industries, transport, communication, garrages etc In India working children are also self employed as newspaper boys, milk boys, shoeshine boys, ragpickers, rickshaw-pullers, porters, etc. As per 1971 Census, while 92% of child labour in rural areas is engaged in primary sector viz. cultivators, lievestock, fishing and plantation, agricultural labour etc ,the corresponding percentage in urban areas is only 24% The largest percentage of children (39%) is engaged in tertiary sector viz. trade and commerce, transport, storage and communication etc in urban areas while this accounts for only 3.5% in rural areas The percentage of child labour engaged in cultivation is considerably higher among males (39 6%) than females (26 2%) whereas among those engaged as agricultural labours the number of females is much higher (55 4%) than that of males (38.1%) In the secondary sector female child labour is mostly engaged in household industries whereas the male child is more commonly employed outside the house-hold industry sector. According to the 1981 census, 78 71% of child workers are engaged in cultivation and agriculture, 6 3% are employed in fishing, hunting and plantation, 8 63% in manufacturing, processing, repairs, house industry, etc, 3.21% in construction, transport, storage, communication and trade and 3 15% in other services

Child Labour is exploited in several ways Preference of child labour by many employers is mainly due to the fact that it is cheap, safe and without any liability Many children take up the job just because of the non-availability of schools in their areas and thus rather than sitting idle, they prefer to go to work Illiteracy and ignorance of parents is also an important factor. These parents do not consider child labour as evil The child workers have to work for much more time than adult workers whether in the agricultural or non-agricultural sectors All the reports on Child Labour also indicate that the wages paid to the children are exploitatively low Poor educational status amongst the working children is due to poor socio-economic conditions, poor educational background of their perents, overwork, exhaustion, lack of physical and mental fitness due to chronic illness and malnutrition and sheer encouragement to take up jobs instead of going to school Lastly, ineffective laws also contribute to the problem of child labour.

Present status

Our Constitution specially protects working childen. Article 24 clearly states that no child shall be employed in any factory or mine, or engaged in any other hazardous employment. Article 39 (e) of the Directive Principles of State Policy states that the tender age of children should not be abused and citizens should not be forced by economic necessity to enter vocations unsuited to their age and strength Article 39 (f) states that children should be given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity. Article 45 also states that the States shall endeavour to provide, within a period of 10 years from the commencement of this constitution, free and compulsory education for all children until they complete the age of 14 years The main instrument relating to the exploitation of child labour is the factories Act of 1948 which extends for the whole of India and applies to establishments employing 10 or more workers working with the aid of power or 20 or more working without the aid of power At present there are 14 major legislative enactments to provide legal protection to the children in various occupations. Inspite of these acts the evil of child labour is flourishing because of the non-conformity and various loopholes in these laws

In April 1974, India adopted a resolution on National Policy for Children On 2nd October, 1975, the Govt of India introduced the Integrated Child Development Services. The Draft Five Year Plan 1978-83 prepared by the Planning Commission stated that "Special attention would be devoted to the problem of children, including prevention of the exploitation of the child labour Economic backwardness necessitating recourse to child labour to supplement the family income and lack of educational facilities are primarily responsible for employment of children. Greater emphasis in the plan on universal primary education and increasing employment opportunities for the adults would enable parents to allow the children to devote more time to school" The National Committee on child labour in 1979 had even recommended more and more surveys to be carried out on child labour to help understand the problem and suggest remedial measures The Draft Sixth Five Year Plan had held the view that total abolition of child labour with all its socio-economic ramifications does not seem to be a feasible proposition in the immediate future It felt that child labour has to be seen distinctly in the categories of wage earning employment, paid family workers and apprentices in traditional crafts The Seventh Five Year Plan also observed that since it is not feasible to eradicate the problem of child labour at the present stage of economic development, attention has to be focussed on making the working conditions of child labour better and more acceptable socially. Improved legislation coupled with better enforcement machinery are called for. The ultimate goal of abolition of child labour can only be achieved when there is sufficient improvement in the conditions of the families whose children are compelled to work.

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Changes in the structure of production— some reflections on standard of living

Dr. L. Krishnaveni

In this article, the author notes that though per capita availability of important consumer goods has improved somewhat over the years, it cannot be described as satisfactory. He calls for an earnest effort to go into the matter in depth and initiate some structural changes in the Eighth Plan. Generation of more employment and ensuring social justice in the distribution of income are the other imperatives to make an impact on bettering the living standard of the masses.

THE VARIOUS FIVE YEAR plans since 1951 have attained some significant growth, but not succeeded in solving the shortage of the basic consumption goods of the poor Though there has been significant growth in the field of industrial and agricultural sectors, the basic needs of the masses have not been satisfied to the desired extent, due to insufficient production Hence in the approach to the eighth plan, the main objective of development is aimed to meet the growing needs of the masses. Consequently the index of progress has to be in terms of percapita availability of basic goods and services. The simplistic vakil-Brahmananda wage-goods model also strikes at the root of the problem connected with wage (basic consumption) goods. In recent years, the same approach also being emphasised by some world bodies as ILO and UNESCO, includes satisfying minimum level of basic consumption goods.

Against this background, this paper is mainly aimed to broadly examine the growth pattern of industrial and agricultural sectors in India in terms of production during 1961 to 1986. Similarly, the growth of the percapita availability of some important consumer goods has been estimated to measure the standard of living of Indian masses during the period 1961 to 1988.

In order to estimate the change in the structure of proudction, production index has been taken into consideration. To maintain uniformity, all the figures were adjusted to the recent base year with the help of Spliced Index Number. Using the production figures, and the figures relating to the percapita availability of some basic goods, average annual growth rates have been estimated for the period under consideration with the help of linear equation.

Industrial production

To provide some evidence for the structural change of the industrial sector during 1961 to 1986, the shares of industries by four major groups namely, basic goods industries, capital goods industries, intermediate goods industries and consumer goods indsutries in the value added by the manufacturing sector are given in the form of weights calculated by Central Statistical Organization for the following three base years 1960, 1970 and 1980-81 as shown in table-I

Table I

Weights of Industries by major groups in Index of Industrial Production.

Group/Year	1960	1970	1980-81
Basic goods	25 11	32 28	39 42
Capital goods	11 76	15 74	16 43
Intermediate goods	25 88	20.95	20 51
Consumer goods	37 25	31 03	23 65
	100	100	100

Source: Report on currency & Finance, various issues

The above table brings out clearly that the weight of the basic goods has been indicating an increasing trend from 25.11% in 1960 to 39.42% in 1980-81. The weight of capital goods also had slightly increased from 1960 to 1980-81. But the weights of intermediate goods and the consumer goods have

been gradually declining during 1960 to 1980-81. Especially the consumer goods preference had significantly fell from 37.25% in 1960 to 23.65% in 1980-81. As result the production of some important consumer goods has been declining.

To analyse the structural change, the average annual growth rates have also been estimated to the production of industrial sector as shown in table-2.

Table 2

Average Annual Growth Rates of Industrial Production By major groups-1961 to 1986.

Group	Growth Rate
1 Basic goods	4 71 (20 48*)
2 Capital goods	4 14 (14 78*)
3 Intermediate goods	3 24 (30 25*)
4 Consumer goods	3 31 (15 76*)
General Index	3 95 (19 79)

Note: 1 Figures in the peranthesis indicate t values
2 * Significant at one percent level

The composition of consumer goods (Industrial sector) indicated a significant growth of 6 39 in the case of durable consumer goods for the period 1970 to 1986-87 The production of durable consumer goods like man-made fibre/fabrics beverages, perfumes, cosmetics, commercial office and household equipment, watches, clocks, air conditioning and refrigeration plants, domestic refrigerators, scooters, electrical machinery etc., has increased moderately. Most of these goods are satisfying the consumption needs of the newly emerging elite-class. However production of non-durable Consumer goods required by the lower income group has registered significantly lower growth than the durable consumption goods to the extent of 3.50 during 1970 to 1986-87. On the whole, the average annual growth of the consumption goods production 3.31 during 1961-1986) is not satisfactory.

As far as the production of the agriculture sector during the period 1961 to 1986 is concerned, the food grains have gained the weight of 63.12%, but whereas the non-food grains weight was only 31 88% for the base year 1969-70, and the same weights have been going on till now.

The average annual growth of food grains has indicated 3.24 for the period 1961 to 1986 as shown in table-3. But the growth of food grains has been confined to only certain cereal crops and neglected the growth of pulses. The slow growth of non-food grains affect the growth of industrial output indirectly. This unsatisfactory growth of non-food

Table 3

Average Annual Growth Rates of Agricultural Production By major groups-1961-1986.

Group	Growth Rate
1 Food grains	3.24 (11.57*)
2 Non-Food grains	2.88 (10 28*)
3 All Crops	3 21 (16 05*

Note. 1 Figures in peranthesis indicate t values
2 * Significant at one per cent level.

grains arrests in turn, industrial growth. For example, the output of crops on which industries are depending for raw materials (like cotton, sugar cane, ground nut etc) failed to increase.

The above illustration clearly indicates that the production of industrial sector is slightly higher than the production of the agricultural sector. Secondly the composition of industrial sector has undergone some significant changes over the period of time. Thirdly the preference of food grains in total production is still higher than the non-food grains production.

In order to measure the standard of living of an average Indian, the per capita availability of some selected consumer goods have to be taken into consideration. The growth rates of some important goods have been presented in table-4 as follows.

Table 4

Average Annual Growth Rates of the Percapita Availability of Some Selected Consumer Goods 1961-1986.

S No	Item	Growth Rate
1	Cereals	1 23
2	Pulses	-0.91
3	Cotton cloth	-0 20
4	Man-made fabrics	0 08
5	Edible oils	0 10
6	Vanaspathi	0 02
7	Coffee	-0 61
8	Tea	5 90
9	Sugar	0 23
10	Electricity	0 75

Note. Basic data drawn from Economic Survey 1986, 1988.

During this period, the population has grown, but the growth of food is not sufficient to meet the rapidly rising population. The average daily requirement of cereals to an average Indian adult is estimated at 412.2 grams. During 1960's the percapita availability of cereals was lower than the daily requirement. But in early 1970s, it had indicated some satisfactory trend with some surplus. But since 1978, it has been indicating some improvement constantly. But compared to the population growth, the growth of

cereals is not satisfactory. Thus knowing the shortage of cereals, some serious effort has to be made in this regard.

Similarly, the percapita availability of pulses per day has been indicating a deficit than the average daily requirement of 67 5 grams The growth of the percapita availability of pulses also has been negative to the extent of -0.91. This portends an alarming crisis with regard to the production of pulses

The total requirement of food per day to an average Indian is 479.7 grams. But except in few years of the study period, the growth of food in general has been indicating a satisfactory trend

Next to food, secondary preference can be given to clothing for the protection of body against heat and cold It can be noticed from table-4 that the percapita availability of cotton cloth has been indicating a negative growth (-0.20). This can be attributed to a change in tastes and preferences of the consumers Now-a-days every consumer is shifting his demand from traditional cotton cloth to man-made fibre fabrics due to their durability and the convenience of easy washing, though they are costlier than the cotton cloth. Therefore, naturally the production of man-made fibre fabrics has been increasing.

The edible oils and vanaspathi have recorded some positive growth during the period 1961 to 1988. The edible oils have indicated relatively higher growth than the vanaspathi due to their abundant production and relative cheapness of the price

Coming to the consumption of beverages like coffee, growth has been negetive but the growth of tea percapita has been raising in leaps and bounds compared to any other consumer good (selected in this study). It may be due to the rapid increase of production both in Northern and Southern parts of India. It is also revealed that the price of tea is relatively cheaper than the price of coffee, hence naturally tea can be treated as poor man's drink.

Similarly, suger also has indicated a positive growth in its percapita availability due to significant production.

Lastly, the percapita availability of electricity also has been taken into consideration to measure the standard of living. Recently, due to rapid electrification of all remote areas and the growing usage of electrical appliances, the consumption of power has been rapidly increasing. To meet the growing demand, many power generating plants were established in recent years to increase the power supply. Surely, it reflects a positive growth in the percapita availability of electricity to the extent of 0.75.

From the above illustration, it can be summed up, that the per capita availability of important consumer goods has recorded some growth except in few years, but still the requirements of growing population are not satisfied fully due to inadequate production. The rapid growth of population also has been reducing the percapita availability of consumption goods.

Conclusion

In order to increase the supply of basic goods, it is planned to invest more in certain sectors, where the production is really required through proper allocation of resources, to improve the standard of living of the masses. As a result, the flow of goods and services can be improved. For this, the existing plan approch has to be altered intensively to focus basic needs of masses. To attain this objective we need not switch over to wage-goods model from the existing approach. The sudden transformation of the plan approach may create some unfavourable influence on the existing economic structure. Moreover, the objective of pushing the supply of consumption goods to the poor is not a new task to us. Even in the previous plans we have been insisting on the same issue. Therefore in the Eighth Plan some serious effort has to be made in this regard, through some structural changes in the production. Simultaneously, the population growth has to be curtailed, to avail the benefit of more percapita availability of all consumer goods. In addition to this, there should be equal distribution of income and employment opportunities to all to help to improve the purchasing power of the people.

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Foreign investment in India: Policy lessons & prospects

M.K. Ghoshal

Policy

Rise in foreign investment over the decade has been meteoric-from less than Rs. 10 crores, in 1980 to over Rs. 300 crores last year. However, though it helped in bridging the investment and technology gaps, the impact on the export front is far from encouraging. The author lists some areas which call for better appreciation to encourage larger inflow of foreign investment within the parameters of national goals.

THAT NATIONAL PRIORITIES should guide India's oreign investment policy is evident from the itterances of the new Prime Minister and Union 'inance Minister in their recent press conferences. 'he Prime Minister is reported to have given a ositive indication that foreign investment would not e discouraged and that the proposals for entry of nultinationals like PEPSI Cola would be reviewed on nerit. The Finance Minister's clarification that the roposed non-essential import cuts to minimise rade deficit would not come in the way of import of equired technology and capital, was a signal of eassurance. He also offered to look into the proposal o raise the normal limit of foreign equity participation rom 40% to 51%. The new Union Industry Minister as emphasised the need to continue with the iberalisation measures initiated by the previous overnment. It is, therefore, obvious that the new lational Front Government would carefully review he earlier policies before formulating new strategies.

Historically, the country's foreign investment and technology transfer policy was announced for the first time in Industrial Policy Resolution, 1948. The Resolution inter alia recognised that participation of foreign capital, particularly industrial technical knowledge, would be of value to the rapid industrialisation of the country. PM's Statement in Parliament on participation of foreign capital in industries (1949) elaborated Government's approach and emphasised the need to supplement Indian capital by foreign capital not only because national savings would not be enough for the rapid development of the country but also because in many cases scientific, technical and industrial knowledge and capital aquipment could be best secured alongwith foreign capital. Since then, the industrial and economic scenario has undergone a sea change but the underlying rationale of inducting foreign technology and investment holds good even today.

Foreign Direct Investment (FDI) was made subservient to technology import and acquiring improved technology from abroad through technical collaboration was an essential condition for allowing foreign equity participation. In view of the technology—investment link, in terms of the general FDI policy (relaxable for investers from oil exporting developing countries (DEDC) and Non-Resident Indians (NRIs) since early 1980s) foreign capital could enter Indian industry only through new joint venture projects where foreign partner is also the supplier of technology.

In a bid to ensure that the major interest ownership and effective control of an undertaking should be in Indian hands, the normal limit for foreign equity has been laid down at 40%. The ceiling is relaxed to attract the state-of-the-art technology to high-tech areas

(upto 74%) and the same may go up to 100% in 100% export oriented units. This relaxation in normal foreign equity limit is designed to maximise benefits to the economy.

The policy that foreign investment must accompany technology was diluted in early 1980s in order to tap the vast potential of investible funds available with investors from Oil Exporting Developing Countries (OEDC) and the Non-Resident Indian (NRIS). DEDC investors were allowed to invest in priority industrial areas without bringing in technology. NRIs were offered various channels of investment, including bank deposits and portfolio investment, not open to other categories of foreign investors. Thus the focus of FDI has since shifted from technology import to capital import and access to foreign exchange resources only in respect of DEDC investors and NRIs. The underlying objective was to get additional resource inflow from abroad for funding development projects as also to provide support to the country's balance of payments position.

Lessons

The foreign investment and technology transfer policy is fully integrated with the national policy of promoting rapid economic development through successive five year plans. The available data show that between 1957 and 1989 nearly 13,000 foreign collaborations were approved by the Government. The approved annual level of foreign investment was less than Rs. 10 crores till 1980 but picked up in subsequent years reflecting liberalisation and improved investment climate. The foreign investment approvals rose from Rs. 62 crore in 1983 to Rs. 126 crore in 1985 and further to Rs. 240 crore in 1988. In the 1989, it reached a record Rs. 317 crore. A large number of foreign collaborations during the 80s, accounting for 50% of the total since 1957, indicate a significant inflow of technology during the sixth and seventh five year plans. Starting with a few industries jute, textiles and sugar-at the time of independence, the country achieved diversified industrial growth by setting up basic and intermediate industries as also consumer goods industries. Since self-reliance was the major plank of development planning, the main thrust of industrialisation was on import substitution industries designed to meet most of the country's requirements through domestic production and to minimise dependence on imports. The industrial development was supported by technology inflow from abroad in desired sectos.

It goes to the credit of the technology import policy that the country has been able to develop domestic capabilities and has attained self-sufficiency in a wide range of industrial products. Accordingly, for 22 broad industry groups, there is no need for either foreign technology or foreign investment.

Technology transfer and foreign investment has also paved the way for India's emergence as a supplier of appropriate technology to less developed countries of Asia, Africa and Latin America. By end December, 1989, there were 193 Indian joint venture projects in 38 countries of which 152 units were in production and 41 under implementation. The initiative taken by Indian firms to operate beyond national frontiers may be viewed in the context of strengthening India's commercial and economic links with those countries and also to give a boost to our export efforts.

Given the import substitution orientation to industrial development Indian industries operated in a sheltered market and were protected from internal and external competition. Since the domestic sales of their products were more profitbale than export sales in the international markets, exports failed to pick up despite large inflow of foreign technology in Indian industry. In the investment strategy of the foreign enterprises, export production and expansion did not enjoy a high priority. A number of studies covering companies with foreign equity as well as with technical collaboration show low export propensity as reflected by the share of exports in their sales turnover. Exports as a proportion of total sales never exceeded 5 to 7 per cent except in the case of a few companies. Thus FDI and technology transfer made only a marginal contribution towards export promotion.

The private sector organisations including industrial projects have not paid adequate attention to develop R&D facilities. The bulk of the R&D expenditure has been incurred by the public sector, though the Government effort is also on a lower scale compared to what is being done in developed countries.

Our industrial concerns lag behind their foreign counter-parts in R&D expenditure both in absolute terms and as percentage of sales turn-over. The sample companies in a recent FICCI study spent negligible 0.7 per cent of sales turn-over on R&D as against 4.7 per cent spent by large corporations in Japan and USA. In 1987, Japanese total research expenses on science and technology amounted to US$ 68 billion and in 1988 USA spent about $ 140 billion on R&D. The percentage share of R&D expenditure to GNP is as low as 1.1 per cent in India as against 2.8 per cent in USA, 2.3 per cent in France, 2.9 percent in Japan, 2.8 per cent in FRG and 3.8 per cent in USSR. India's per capita R&D expenditure is only US $ 2.78 while in most of the developed countries it varies between US$ 100 and US$ 400.

Our relatively weak R&D base at unit, industry and Government levels has obstructed proper assimilation of imported technology and has often led to wasteful import of repetitive technology, besides discouraging generation of indigenous know-how.

Apart from enjoying political and economic stability, the nation's commitment to democracy and to payment of compensation in the event of

nationalisation provides sufficient protection to foreign capital in India against non-commercial risks. Though keeping away from Multilateral Investment Guarantee Agency (MIGA), the country has an unblemished record of honouring international commitments, including remittances to foreign companies. Significantly, such remittances covering profits, dividends royalty and technical know-how amounted to Rs. 43 crores in 1965-66 but rose to about Rs. 500 crores ih 1986-87. The raising trend should serve to strengthen the confidence of foreign investors in the safety and profitability of investing in India.

Some foreign suppliers of technology and investment may have certain reservations about sharing their advanced know-how with the Indian buyers due to the Indian Patent Act of 1970 which gives (a) protection to patents for a limited period, (b) protection to patented process and (c) no protection to certain products. The objective of the Indian law is to encourage invention while allowing commercial application of foreign patents. The majority of the overseas suppliers perhaps see the merit of the Indian law, as reflected in the large number of technical collaborations.

The predominance of technology linked investment is reflected in the data on foreign collaborations Of the estimated FDI approvals totalling Rs. 900 crores between 1985 and 1989 only 3 per cent is accounted for by OEDC investors, where technology need not accompany foreign equity Another 11% is contributed by NRIs and the balance 86% by the advanced countries, particularly the USA, FRG, Japan UK, France and Italy, which are the main sources of both technology and investment

Prospects

To meet foreign resource needs of development, greater reliance was placed on Overseas Development Assistance (ODA) during 1960s and 1970s and on a mixture of both ODA and commerical borrowing during 1980s. In view of inadequate ODA and commercial lending, the emphasis was on fresh initiatives on procedural simplification and streamlining from mid-1980s for securing larger foreign investment. As a result, FDI inflow has been showing a rising trend and crossed Rs. 300 crores mark last year

India's FDI policy has remained selective and this selectivity, according to certain observers, has failed to attract large scale capital inflow from abroad despite policy relaxation allowing foreign investment even in existing industrial units Another limiting factor is attributed to the stipulation that foreign equity contribution should only be in cash, i e in free foreign exchange. The normal 40% limit on foreign equity and other rforeign exchange regulations, particularly those relating to FERA (1973), are also projected by foreign parties as inhibiting factors The essential condition relating to Phased Manufacturing Programme (PMP) or indigenisation of industry is often criticised as a disincentive to foreign investors, though in actual practice the approach is not so rigid. Lastly, there are general complaints about unhelpful bureaucracy, complicated procedures and administrative delays. All these aspects need looking into afresh to evolve a more pragmatic appraoch.

The Indian terms concerning payment for technology compare favourably with those offered by other developing countries. Perhaps, these could be made to look more attractive by allowing somewhat higher royalty rates for the state-of-the-art or closely held technology or for meeting higher export obligation.

Foreign investment in India once approved is treated on par with domestic investment in all respects By entering into double taxation treaty (comprehensive or sectoral) with 52 countries so far, India has created a congenial tax environment for overseas businessmen. Finally, India would continue to need foreign investment and advanced technology as essential inputs for accelerating growth and modernisation. ☐

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Suggestions

The problem of child labour in India is on the increase inspite of the Leggal enactments. The most important cause for it is poverty. Recognising the vast magnitude of prevalence of child labour in every sphere of the society and considering the economic constraints and social exploitation which lead to continuation of child labour in the society, child labour seems an indispensible social evil. Child labour cannot be totally eradicated at present by legislation alone unless supplemented by comprehensive socio-economic programmes and educational uplift of the under privileged sections of the society and by a total change in the attitude of the society towards child labour Acknowledging the spectrum of laws, the legislations related to child labour and the rights of the child should receive wider coverage by the mass media to increase public awareness and the legislation regarding child labour should be implemented in the spirit of the law in every sphere of child labour. It also needs closer co-ordination between the departments and agencies implementing the laws. It is essential to frame norms for working environment in different industries, trades and other areas of employment of child labour and extension of compulsory basic and need-oriented education to all working children. The general improvement in socio-economic conditions of people will result in gradual elimination of child labour. ☐

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Entrepreneual ventures: initiation & financing

Nina Nagpal

The need for evolving a mechanism which will keep the small entrepreneurs fed with updated technology has been suggested by the author. Innovative financing methods like venture capital may serve a useful purpose. Among others, these steps will help in giving a shot in the arm of the small scale units which has a crucial role to play in the economy.

ENTREPRENEURIAL FUNCTIONS HAVE assumed a high degree of relevance in the present context and entrepreneurship is being perceived by planners and policy makers alike as a crucial parameter of economic development with high employment and income generation potential.

The government's conviction in the need to provide impetus to entrepreneurial initiatives is evident from the plethora of schemes/plans announced from time to time inorder to stimulate small scale sector development. It is equally well reflected in the financial assistance packages offered by the financial institutions/banks on attractive terms and also in the assistance offered by private/government agencies, banks for providing training to potential entrepreneurs Most recently, the government's pronouncements of its commitment to entrepreneurial activity and small scale sector development have been reiterated by the setting up of the Small Industries Development Bank of India, through an act of Parliament, to exclusively meet the resource requirements of the small scale sector.

Why small scale sector

This emphasis on small industry emanates from its two significant characteristes i.e its high employment potential and its low capital output ratio The latter characteristic is of great significance particularly in the context of a capital scarce economy The high employment potential of the small scale sector is a fact which appears to hold universal validity regardless of the level of economic development. The U S Government reported in "The State of Small Business· A Report of the President" that small business dominated industries, added jobs at a rate almost twice that of industries dominated by larger firms—11.9 compared to only 5.3 percent from November 1982 to October 1984. The same report emphasized that 67 per cent of all new jobs in the U.S. are created by small businesses and that small firms account for 38% of Gross National Product. In India the 8 lakh small scale sector and entrepreneurial ventures in 1981 provided employment to 67 lakh persons and accounted for exports worth Rs. 1,050 crores as per the report of the Office of the Development Commissioner, Small Scale Indsutry. According to Yojana (March 1-15, 1988), the provisional figures for 1985-86 suggest that elmployment in this sector was around 100 lakh and export by this sector was Rs. 2,785 crores. In effect, in a period of four years exports from the small scale sector rose by almost 173% and employment by almost 50%, a performance significant by any standards. In the United States the studies done by David Birch at M.I.T. pointed out that medium and smaller companies supplied almost three quarters of the new jobs created. He also found that between 12% to 15% of the smaller firms accounted for the vast majority of all new job creation

The small scale sector is characterized by low capital output ratio implying higher output per unit of capital employed in relation to the large scale sector. This ratio is evidently higher in the large scale sector since large industries like steel, cement are capital intensive and have long gestation periods. Therefore fluctuation in capacity utilization in these industries adversely reflects on the capital output ratio Studies have revealed that in 1974-75 net capital output ratio of large enterprises was three times that of the small sector

Small ventures and business incubators

Successful new business ventures and economic growth do not happen on their own but require to be

orchestrated with the right mix of innovation, planning and finance. This implies an environment that is both conducive and encouraging for a close interaction between the entrepreneurs, government and venture capitalists. Today, there are a large number of funding sources available within the country that offer resources for training and development of entrepreneurs. In response to the availability of such funding sources, both national and international, a number of agencies, institutions in both the public and the voluntary sector have sprung up throughout the country. Without commenting on the quality of their work or the standards of their performance in terms of final output of the numbers of successful entrepreneurs, evidently a crucial parameter is missing in the entire scheme of things The missing link in such programmes is not the managerial or behavioural input but the technology element. More often than not, it is the identification of a commercially viable product or a process that proves to be the limiting factor. However given that an appropriate technology is identified and an unit is proposed to be set up, it requires tremendous effort on part of the entrepreneur in terms of obtaining infrastructural facilities and support, administrative and logistics facilities, feedback on and improvement of the technology being used, resolving mechanical/technical problems emanating out of day to day operations to mention only a few aspects of a new business that requires attention. Small fledgling firms require support in the initial stages of growth and 'business incubators' play a crucial role in offering support to new business through access to low cost facilities and services As and when small businesses grow and stabilize, they step out of the business incubator to be on their own The concept of business incubators is of fairly recent origin even in countries like the U S. Business incubators within the Indian context too would provide the required thrust to entrepreneurial efforts, even though some entrepreneurship training entities try to provide services to entrepreneurs after training under the rubric of 'escort services' which include assistance towards location of land, obtaining government clearances and advances from banks, etc Training entities, however, do not and essentially may not, have the resources to offer a variety of services to an up and coming business firm Setting up of business incubators either by the government or private individuals and foundations in India will beyond doubt have a catalyzing influence on the success of entrepreneurial ventures as it has had in the West.

In the U.S., for instance, business incubators had been developed since 1980. Business incubators are dsigned to assist entrepreneurs in developing their business skills in an environment that simultaneously stimulates creativity. Incubators vary in size and the range of facilities being offered to the clients. However there are some generic elements of the incubator concept. These are low cost office space, secretarial assistance, library, computer facilities, inexpensive workforce in the form of undergraduate and graduate students and contacts with bankers, government officials, venture capitalists and technologists The availability or rather the convergence of all these varied but extremely important facilities at one physical location provides the entrepreneur with an environment to be able to work on technology and product innovation related issues. Incubators which have a physical proximity with university, research institutes/centers are considered to be immensely advantageous because of easy access to library and computer facilities, exposure to state-of-art technology, exchange of ideas with academic community and the pool of cheap labour available in the form of graduate/undergraduate students

Interestingly sometimes existing firms and corporations by default perform the role of business incubators and are termed incubator organizations. These are firms which employ individuals who subsequently establish their own ventures which are often equally or even more successful as the parent firm/corporation. Such 'spin offs' are very common in emerging industries like electronics. In India for instance, the departure of IBM in 1977 gave birth to IDM and similarly HCL now a major computer company was a spin off from DCM Data Products. The parent company no doubt suffers losses in terms of trained personnel. However sometimes existing ventures by strategy also give rise to new ventures and this phenomenon is called 'intrapreneurship' Existing businesses have a feel of the market as also the necessary infrastructure and facilities for commercializing new products, however they may be restrained by the existing organizational structure, specific goals and objectives of that firm etc. Whenever the managements have been sensitive to the need to diversify or innovate and have been aware of the inhibiting factors in the exisiting environment, they have been supportive of the initiative and enterprise of their managers. With the support of management and necessary concomitent resources, entrepreneurs are born The entrepreneurs are suitably rewarded, without risking their capital and the parent company benefits in terms of a diversified portfolio and expansion without losing valuable and trained human resource

Technology and innovation

In terms of Schumpeters theory, the characteristic that marked an entrepreneur was his innovative capability. In effect, an individuals skill at successful commercialization of a product (i.e. good or process/technique) signalled his success as an entrepreneur. However reviewing the Indian scenario significant efforts in two directions are evident. One is the new form of financing available for new ventures like the venture capital funds set up in both the private and the public sector. The second type of efforts are those that have been undertaken by a gamut of Institutions to train individuals, though not necessarily

technologist, as entrepreneurs. This approach has had its successes whenever and wherever the individual has a clear perception of the product that is to be manufactured and marketed The step of product selection is often an integral part of the training package administered to the trainees which also includes an input on market survey Some guidance from the trainers and little past experience of the trainees in this area makes the identification of a commercially viable product difficult This adversely affects the success rate of such entrepreneurial training and development efforts. What may remedy this situation is the availability of simple technology packages that may be matched with individuals. What this would essentially mean is a close interface between research and training institutions. In India the Industrial Credit and Investment Corporation of India (ICICI took the pioneering step of setting up the countries first venture capital fund in 1988 called the Technology Development and Information Company of India TDICI as a venture fund is unique in that besides offering equity participation and conditional loans, it supports indigenons technology development and provides assistance for R & D and technological innovations. The technology information services like those offered by the TDICI hold potential for strengthening the essential linkages between research and tranining institutions. such networking will result in success of training efforts as yet not seen. Clearly there is a need for appropriate technology packages that non technical potential entrepreneurs can choose from E G Institute for Design of Electrical Measuring Equipment, Bombay and the Central Institute of Tool Design have been providing guidance to the small scale sector in the adoption of modern techniques. A one to one interaction between potential entrepreneurs and research institutions may not always be workable whereas a Institution to Institution linkage for the commercialization of an existing research may yield positive results

Concept of venture capital

Venture capital as a form of financing is quite different from loans and advances offered to up and coming private businesses. The loans extended to new businesses are expected to be repaid by the entrepreneure along with a predetermined rate of interest whereas a venture capitalist makes a long term investment in the creation of early stage companies (or for that matter in the financing of management buy outs of existing divisions of major corporations or even revitalization of existing businesses) with the objective of long term capital apprectiation The venture capitalist participates through equity involvement in the portfolio company by equity participation or through the direct purchase of stocks Unlike other conventional financing agencies like the banks or financial corporations, the venture capital company is associated with the functioning and operations of the portfolio company and makes significant contributions towards investment and financial planning. Since the overrding objective of the venture capitalist is the appreciation of its capital in the protfolio company, it has a vested interest in ensuring that the financial management and decision making are sound. Even prior to investing its financial resources the venture capital firm completes a comprehensive cost benefit analysis, investigation and subsequently substantial commitment of time and experience to the client company

The organized venture capital industry has been evolving since the 1960s In the United States for instance it was a $ 2 5 b industry in 1977, grew to over $16 b in 1984 and further rose to $ 25 b in 1987. (Source: Robert D Hisrich-Entrepreneurship, Intrapreneurship and Venture Capital).This major spurt to this industry in the U S. has been attributed to the reduction in the capital gains tax in 1978

In India, the formal initiation into venture capital business was done by TDICI with a Rs. 20 crore fund. The second fund is a Rs 30 crore fund TDICI works with the following aims (i) Indigenous technology development (ii) development of Technologist-Entrepreneurs (iii) Support for technology and R&D innovations (iv) Technology Information diffusion to industry and other institutions. Given these aims TDICI covers all the conceivable functions of a professional venture capital fund or more specifically the functions of a 'technology targetted' venture fund. Infact it even transcends the conventionally defined role of a venture fund of providing seed capital for a commercially viable and technically sound venture. Towards the end of developing technologist-entrepreneurs, TDICI has already supported a number of projects of start up companies initiated by first generation entrepreneurs along with necessary support in regard to information and technology. Also, very recently the first venture capital fund in the private sector has been set up called the Credit Capital and Venture Fund

Objectives and philosophy of venture funds

The objective of the venture capital firm is not to gain control over the portfolio company. It systematically follows the following steps purely from an investment point of view, (1) Assesment of management potential (2) Investment of financial resources in the portfolio company (3) Support to management in terms of financial and investment planning and guidance. The underlying basis of the relationship between the venture capitalist and the client firm is that of trust which also ensures a sound working relationship. This is not to suggest that this is invariably the case. There do arise problems in situations when the venture capitalist dictates rather than 'suggests'. The venture capital firm very earefully assesses the potential firm on the basis of parameters like the strength of management and its capabilities, the attractiveness of the investment opportunity with regard to its,

(Contd. on page 27)

Lop-sided industrialization of Kumaun division—a study

Dr. S.S. Khanka

In this study the author has strongly pleaded for providing graded incentives for encouraging industries in the hilly region. The existing concessions overlook regional peculiarities. These are half-hearted measures and difficult to avail of, says the author. He also feels that a minimum level of infra-structure must be created to attract entrepreneurs.

IN VIEW OF INDIA'S implicit policy for balanced regional development, the Government of India has classified all the backward districts into the three categories A, B and C to provide them special facilities to establish industries there. The basic assumption behind these facilities is that the backward areas suffer from certain disadvantages, which could be offset by promotional and pecuniary assistance so as to make these areas worthwhile for the industries to be located there. The Kumaun Division of Uttar Pradesh represents one such special case of industrial inducement where all the three districts have been classified as 'Category A' to provide them special incentives and concessions to induce industries there.

The division comprises of the two hill districts of Almora and Pithoragarh and Nainital district a small part of which is hilly and another large part belongs to the plains. Topographically, about 90% area of the division belongs to the sprawling hills and only 10% area falls in the foothill plains. The division forms the northern most part of the State of Uttar Pradesh. Its population 23,83,163 in 1981, and area 21,035 Km constitute about 2.15% and 7.14% respectively of the total population and area of the state.

Going by the hypothesis that industrial development to-day is less dependent on the natural endowment, both the scope of decentralisation o industries and the possibility of formulating a programme of facilities like incentives and subsidies more effective for inducing industries in backward areas assume added importance. This is an area in which not much research work has been done in Kumaun Division of Uttar Pradesh. This study is therefore, a modest attempt.

(i) To try and analyse the locational pattern o industrial development taken place so far in the division.

(ii) To point out policy implications for further locational dispersal of industries during nineties.

Lopsided locational pattern

Some important indicators reflecting the level o industrial development of Kumaun vis-a-vis Utta Pradesh are juxtaposed in Table 1.

A close look at the various figures in Table 1 clearly indicates that the Kumaun Division remains way behind in industrial development than the State as a whole which itself lies at a low level of industria development. Within Kumaun itself, vas inconsistencies in the levels of industrial develop ment are noticed very much between the two sets o districts. While the two hilly districts— Almora and Pithoragarh—exhibit very low level of indsutria activity, on the one hand, Nainital district wel exceeds the State averages in the majority of indicators In fact, it is the very high figures of Nainital distric on which pop up the divisional averages sometime even higher than the State averages. The percentage of electricity consumed on industrial purposes to tota electricity consumed can be cited as an example. The inclusion of Nainital district in the divisional analysis thus, tends to distort the divisional profile as a whole

Added to the problem of industrialisation is th limited availability of data on whatever industrie exist there. For instance, data collected under th Annual Survey of Industries (ASI) is confined only t the registered factories while, like elsewhere i

Table 1

Important Indicators Reflecting the Level of Industrial Development in Kumaun in Relation to Uttar Pradesh

Sl. No.	Indicators	Almora	Pithoragarh	Nainital	Kumaun Division	Uttar Pradesh
1	Percentage of industrial workers to total workers, 1981					
	(a) Manufacturing Households	3.78	3.76	8.42	5.90	9.01
	(b) Manufacturing other than Household	1.55	2.19	2.01	1.91	3.70
2.	Number of factory workers per lakh of population, 1985-86	2.23	1.57	6.41	3.99	5.31
3	Value added per worker (in'000 Rs), 1985-86	86	50	1039	476*	557
4	Per capita gross value of industrial produce (in Rs), 1985-86	17.02	10.99	21.37	17.04*	41.84
5.	Percentage share of manufacturing in net income from commodity producing sector (At current prices), 1985-86	59.75	39.77	1546.13	592.75*	805.31
	Registered	0.9	0.9	15.0	9.1*	11.3
	Unregistered	9.3	8.4	5.3	6.2*	14.2
6	Percentage of electricity consumed for industrial purposes to the total electricity consumed, 1986-87	14.2	10.4	60.5	54.3	38.7
7.	Percentage of value added to capital employed , 1984-85	14.4	12.1	16.9	16.7	20.6

N.B. *Refers to Hill Region Consisting of Kumaun Division and Garhwal Division*

India, a large number of industrial activity in Kumaun Division is likely to consist of unregistered and household units. Supplementing the ASI data with those available from Regional Directorate of Industries and other sources, we have, therefore, tried to outline the structure of industrial activity in the division. Nonetheless, the coverage is likely to be far from adequate.

The data sources for the 7 indicators given in Table 1 are

Indicator Nos.	*Data Source*
1	Census of India, 1981, Service-22, Part II- A & B (ii), General Economic Tables, *B-4, Part A & B-4, pp. 106-351*
2,3,4,5.	Districtwise Development Indicators of Uttar Pradesh, Economics and Statistics Division, State Planning Institute, Uttar Pradesh, Lucknow, 1988, pp 17-28
6	*Sankhikiya Patrika, Kumaun Division,* Office, Deputy Director (Economics and Statistics), Kumaun Division, Nainital, Uttar Pradesh, 1987, pp 73-84
7	Annual Survey of Industries, Uttar Pradesh, Economics and Statistics Division, State Planning Institute, Uttar Pradesh, 1984-85, pp 196-335

According to Table 2, the entrie Kumaun Division reported a total of 86 factories in the year 1984-85 highly unevenly distributed between the two sets of districts. Of these, more than four-fifth (72) are concentrated in Nainital district alone. Further, if we look at employment in these 86 factories, the share of Nainital factories mounts to even more than nine-tenth of the total employment of 13841 persons.

Thus, the already low level of industrial development in the division has primarily been concentrated in the plains area of the division, leaving the hilly terrain virtually devoid of industrial activity. This is mainly due to the former's very little industrial base and partly due to the reason that the hilly districts are notified as 'Category A' districts eligible for special incentives and concessions, which also seem to have been able to play some role. As regards the higher growth rate of employment in these districts, it can also be explained in terms of the predominance of small and labour intensive industrial units located there. One way of examining the very low level of Kumaun's industrial development may be its even

Table 2

Districtwise Factories, Employment and Output in Kumaun Division and Uttar Pradesh from 1965 to 1984-85

District	Years	Number of Factories submitted returns	Employ-	Output (in '000 Rs)
Almore	1965	2*	69	8.50
	1984-85	10	682	39.88
Pithoragarh	1965	—	—	—
	1984-85	4	400	20.28
Nainital	1965	18	2,397	472.80
	1984-85	72	12,759	1286.02
Kumaun Division	1965	20	2,466	481.10
	1984-85	86	13,841	1356.18
Uttar Pradesh	1965	1353	191,329	26392.00
	1984-85	6322	698,005	80972.12

N.B. *Upto 1978-79, due to less than three factories in Pithoragarh, their information are included Almora

Source 'Annual Survey of Industries, 1965 and 1984-85,' Economics and Statistics Division, State Planning Institute, Uttar Pradesh, Lucknow, pp 193-335

below 2 per cent share in the State's total units (1.36 per cent), employment (1.98 per cent) and output (1.67 per cent) while the division comprises 2.15 per cent and 7.14 per cent respectively of the total population and area of the State.

The highly lopsided distribution of industries between the districts skewed in favour of Nainital district is again revealed by the figures in Table 3. The Industry Department of the State Government reported a total of 3043 industrial units in Kumaun in 1987-88 (see Table 3). Here again, nearly three-fifth of total units are located in Nainital district alone Only 41 units fall in the category of medium and large scale of which more than nine-tenth (37) are located in Nainital district and 2 each in Almora and Pithoragarh. Almost a similar skewedness in employment is noticed in favour of Nainital district. As regards the small scale industries, Nainital claimed comparatively a smaller dominance both in the number of units (56 per cent) and employment (63 per cent). This implies that the small scale industries are seomewhat more evenly distributed between the districts.

Table-3

Existing Industrial Status of Kumaun Division on 31.3.1988

Districts	*1 Unit 2 Employ-ment*	*No. of Industries Medium/ Large*	*Small*	*Total*
Almora	1	2	933	935
	2	793	4,665	5,458
Pithoragarh	1	2	385	387
	2	201	1,319	1,520
Nainital	1	37	1,684	1,721
	2	8,304	10,364	18,668
Kumaun Div	1	41	3,002	3,043
	2	9,298	16,348	25,646

Source Offices of the General Managers, District Industry Centres, Almora, Pithoragarh and Nainital

The product-wise structure of these 3043 industries is given in Table 4. It appears that the industrial structure is well diversified, to a certain exent, as 4 industry groups have a significant number of units Nonetheless, agro-based units followed by th engineering units account for the maximum of th units. However, the forest-based industries hav retained their second position in terms of number o units over the years due to severe raw material problem Engineering and allied units are emerging as significant growth in the division, with 658 units (2 per cent of the total units), it constitutes now th second largest group in terms of the number of units But, it may be noted here that the untis in this grou consist of small repair workshops and in fact, not al large manufacturer. Textile and Chemical units ar the important groups witnessing a significant growt in their numbers. Here again, the industrial structur of Nainital is evidently more diversified than o Almora and Pithoragarh.

There are several reasons for the heavy concentra ion of the agro-based industries comprising mainly flour-mill, rice mill, sugar mill, gur and khandsari agricultural tools manufacturing etc., in Nainita district. The most important among the reasons is highly developed agriculture in the plains region o the district. The maximum foodgrain-based industrie and also agricultural tools manufacturing units are therefore, to be found there. On the contrary, th expansion of these indsutries is highly limited in th hills, i.e. Almora and Pithoragarh districts, first because of predominance of subsistence agriculture and second, because of difficulties on the applicatio of modern agricultural implements in the hil agriculture. Not only that, the dearth of adequate raw material from local sources and problem o marketing for the finished goods have further limite the expansion and development of agro-base industries in these two hill districts.

Policy Implications

Going through the preceding analysis, it is now clear that the already low level of industria development in the division has been highly lopside in favour of Nainital plains. In fact, the hill districts o Almora and Pithoragarh have remained virtuall

Table 4

Product-wise Number of Registered Industries in Kumaun Division on 31.3. 1988

Productwise Industries	*Almora*	*Pithoragarh*	*Nainital*	*Kumaun Div*
1 Agro-Based	323 (34)	19 (5)	435 (25)	777 (26)
2 Forest-Based	88 (9)	25 (6)	193 (11)	306 (10)
3 Livestock-Based	4 (1)	—	20 (1)	(24 (1)
4. Textile-Based	171 (18)	5 (2)	164 (10)	340 (11)
5. Chemical-Based	58 (6)	10 (3)	217 (13)	285 (8)
6. Engineering & Allied	96 (10)	2 (1)	560 (32)	658 (22)
7 Miscellances	195 (22)	326 (83)	132 (8)	653 (22)
Total	935 (100) (31)	387 (100) (13)	*1,721 (100) (56)*	*3,043 (100) (100)*

N.B.: Figures in parentheses denote percentages to total
Source: Ibid, Table 3.

devoid of industrial activity. This tardy industrial development entails some policy implications for the coming years. The most important among these are.

(i) At present, the package of incentives available to the hills is on th same basis as all other industrially backward plain areas in the country or the State as the case may be. As such, no entrepreneur will be willing to establish his/her industry in a remote hill area like Pithoragarh district instead of setting up industry in a realtively developed area like Kashipur in Nainital district to avail of the same incentives and subsidies. In fact, this is one of the important reasons for heavy concentration of industries during the eighties in the plains area of Nainital district.

(ii) The only extra incentive to the industrially backward hill areas consists of 75% central tansport subsidy on the cost of tranporting raw material and finished goods from the nearest declared rail head to the location of the units. This subsidy is to expire on March 3, 1990. However, this transport subsidy could not play any effective role in attracting industries to the hills mainly for two reasons. First, due to the difficulties involved in availing of it, the entrepreneurs do not find the subsidies worth the trouble. Second, at present transport subsidy is not available for transport within the hill themselves. Say, if an industry procures raw material from the hills, it cannot avail of transport subsidy. This provision seems anomalous because, while on the one hand it discourages the use of inputs from the hills in the industries established there, on the other, it grossly neglects the fact that transport costs account for fairly high in the hills than in the plains.

(iii) It is not always financial assistance and concessions that influence the selection of the location of industry, but sometimes certain non-pecuniary considerations also. This assumption is well validated by a recent study on industrial location in Uttar Pradesh. According to this study the major reasons stated by entrepreneurs for locating their units at a particular place was that they belonged to that place and better community life provided a supporting reason. This assumption holds good, at least for two reasons. First, the domestic consideration of entrepreneurs in deciding the industrial location suggests that unlike agriculture, enterprise is not a freely mobile factor willing to move to any place for availing of only marginal advantages. Second, perhaps more important, fiscal concessions and financial assistance on soft and easy terms cannot possibly compensate for the lack of basic facilities like transport and marketing services. As such, concessions and assistance have been finding it difficult to attract industries to remote, unaccessible and typically backward hill areas.

In view of these policy implications, it is suggested that efforts should be made at the first instance, to create a minimum level of infrastructure network conducive to establishing industries in the hills. Then only can incentives and concessions attract entrepreneurs to move towards hill to establish industries.

Undisputably, the backward hill areas suffer from a greater degree of disavantages as compared to their counterparts in the plains. Therefore, it would be logical to provide graded incentives to establish industries in the hills otherwise everyone would like to establish his/her industry in the plains region to avail of the same incentives and concessions as has been happened during the eighties. These graded incentives can be nomenclatured as 'Hill Subsidies', for example.

We feel that unless such appropriate policy measure are formulated and implemented, it will not be possible for the Government to motivate entrepreneurs to establish their industries in the hills Failing in doing so, it is very likely that the spatial dispersal of industries between the hills and the plains would be even much more skewed in favour of Nainital plains in nineties also. ◻

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differential advantage over competition, potential for capital appreciation in that business opportunity.

Small sector development in India: focus areas

In the modern day context the emphasis on technology in the small sector has to be reinforced. Development of and emphasis on small sector development cannot take place without appropriately acknowleding the relevance of improved and better technologies The need for innovation and the development of technologist entrepreneurs will have to be emphasized to respond to the demands of new and emerging markets, to step up productivity of the industrial sector where manufacturing is the major component. Towards this end, along with innovative financing methods supportive technology linkages will have to be developed. This would imply a close and direct co-ordination between training/financing and research establishments to provide for a smooth, unhindered flow of priced technologies (suitable for small scale sector) to aspiring entrepreneurs The relevant and desirable outcome in the entire process is the commercialization of technology and to this end a mechanism is required to be in place which makes information regarding available technologies, new research easily accessible to entrepreneurs. ◻

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Self employment to educated unemployed

C. Subbarayudu Dr. B. Mohan & Dr. N. Subbanarasaiah

In this study the authors have pinpointed certain problems in the proper implementation of the SEEUY. These relate to indifference of banks, procedural rigidities and lack of guidance in choice of vocation. It is proposed that the District Industries Centre take a more active interest in selecting enterprises and spotting enterpreneurship. The authors have suggested, among other things creation of Gramodaya Beneficiaries Development Project, Gramodaya Mini-industrial Estates at mandal level and an apex agency for improving marketing facilities.

UNEMPLOYMENT AMONGST THE educated youth has been one of the burning problems faced by the country in recent years. Wastage of man-power causes poverty, backwardness and ultimately results in migration to urban areas

The Self-Employment to Educated Unemployed Youth Scheme (SEEUY), popularly known as Gramodaya Scheme, which was formulated and introduced by the late prime minister, Mrs. Indira Gandhi, on 15th August, 1983 was an attack on unemployment. The scheme is intended to assist the unemployed educated youth to set up industries/ service units/small business ventures and to generate employment. The scheme aims at covering one person from every village and providing one job enterprise for every village in the country.

The national target of the scheme was fixed at 2.50 lakhs every year since its inception. The achievements were also encouraging. During the year 1985-86, a total of 8.58 lakh applications were received and out of them 2.20 lakh applications were sanctioned by the banks sanctioning the credit amount totalling Rs 429.99 crores. It shows 88 per cent achievement of th target. The progress of Self-Employment to Educate Unemployed Youth Scheme during the years 1983-8 to 1986-87 is furnished in table-1.

Table -1

Progress of SEEUY during the years 1983-84 To 1986-'87

(In lakhs.

Year	Target	Applications received	Applications sanctioned by banks	Amoun sanctione by bank. (Rs
1983-84	2.50	13.71	2.42	401 5
1984-85	2.50	8 97	2 29	429 5.
1985-86	2.50	8 58	2.20	429 9
1986-87° (Prov)	2.50	9.10	2 19	455 1

Source: SISI, Ministry of Industry, New Delhi

The SEEUY or Gramodaya Scheme caters to al educated unemployed youth who are matriculate and above within the age group of 18-35 years Suitable candidates are selected, one from ever village particulary from less affluent sections of th society. The limit of composite loan sanctioned is Rs 25,000 and the level of subsidy is 25 per cent for al types of ventures. The subsidy is to be deposited i the bank as a fixed deposit for a period of 3 years i the name of the candidate, Recently the scheme ha been modified. Under the beneficiaries for industria and service ventures, youngsters who have passe I.T.I are included besides the matriculates and above The limit of the loan for industrial ventures has bee increased to Rs. 35,000, while the limit has bee reduced to Rs. 15,000 in case of business venture from Rs. 25,000. In the case of service ventures th limit of the loan remains same at Rs. 25, 000. Further 30 per cent of the scheme has been reserved fo Scheduled Castes and Scheduled Tribes. The rate o interest on the composite loan sanctioned under th scheme bears 10 per cent per annum for backwar areas and 12 per cent per annum for other area

which is similar to the composite loan scheme of Thambe Committee with out security or guarantee.

Banks do not as the beneficiaries of the Gramodaya Scheme provide owner's contribution or security of the third party's guarantee for the loan. This scheme has been extended to all areas except to cities having more than on million population as per 1981 census. The District Industries Centre with District Task Fore has been chosen as a nodal agency for the implementation of the scheme, in co-operation with the banks including the lead bank in the District.

The District Industries Centre does the identification of suitable ventures, dissemination of information regarding the new schemes among the educated unemployed youth, identification of suitable and appropriate prospective entreprencurs, and identification of suitable and viable line of activities matching with their qualifications, abilities and skills and help them in arranging necessary infrastructure including finance from banks. The District Industries Centre also helps in getting required licences from various departments and tries to find solutions for the problems encountered by the entrepreneurs. Thus the District Industries Centre is expected to provide all sorts of active assistance required to the beneficiaries and remove the difficulties and bottlenecks at the district level.

In this study, an attempt is made to analyse the performance of the District Industries Centre in the implementation of Gramodaya Scheme.

The study was undertaken with the following objectives:

(1) to study the salient features of the Gramodaya or SEEUY Scheme,
(2) to review the progress of the scheme in Cuddapah District,
(3) to assess the hindrances faced by the entrepreneurs which caused delay at various stages and
(4) to evaluate the role of DIC in implementation of the scheme.

The study was conducted in a backward district i.e., Cuddapah. This district is located in the backward region of Rayalasseema in Andhra Pradesh. There are twelve blocks in this district. Four blocks were randomly selected for the present study. From each selected block a sample of fifteen beneficiaries were drawn. Primary data was collected through personsal interviews using a pre-structured schedule. Secondary data was collected from the records of the District Industries Centre, Cuddapah.

The District Industries Centre (DIC) Cuddapah has to cover 813 revenue villages under the Gramodaya Scheme. It was decided to sanction one scheme to every village every year. From the year 1983-84 the amount of loan sanctioned for any line of activity under the scheme was Rs. 25,000. But, it was revised or modified from the year 1986-87 and the amount of loan sanctioned was different for each line of activity viz., industry, business or servicing etc. For industry, under this scheme, the financial assistance provided is Rs. 35,000 while for business the assistance is Rs. 15,000 and for servicing Rs. 25,000. Table-2 shows the progress made under the Gramodaya Scheme by the District Indsutries Centre, Cuddapah.

Table 2

Progress of Gramodaya Scheme in Cuddapah District

	Target	Sanctioned		Actually grounded	
Year	No. of cases	No of units sanctioned	Amount Sanctioned (Rs. in lakhs)	No. of units	Amount sanctioned (Rs. in lakhs)
1983-84	813	751	187 28	612	146 27
1984-85	700	665	151 37	436	83 19
1985-86	700	700	149 40	353	60 32
1986-87	700	644	151 76	258	55 05
1987-88	350	355	N A	151	N A

Source: District Industries Centre, Cuddapah
N A Not available

It can be observed from the table that from 1983-84 to 1987-88 there is a decreasing trend in both the targeted number of cases and the number of units sanctioned. Similar trend is observed in the number of units actually grounded and the sanctioned units. The percentage of amount disbursed to the units actually grounded when compared with the amount sanctioned also decreased from 78 per cent in the year 1983-84 to 36 per cent in 1987-'88. The number of units sanctioned to that of total number of target cases also decreased from 81 per cent in 1983-84' to 42 per cent in 1987-'88. When we consider the rate of achievement from the table-2, it is also on a diminishing trend upto 1986-'87 i.e, from 75 per cent in 1983-'84 to 37 per cent in 1986-87 while it increased slightly during 1987-'88 to 43 per cent compared to 1986-'87. The achievements have been constantly falling down since 1983-'84. The study brings out the undermentioned causes for delay in setting up the units.

In general it is observed that there is an indifferent attitude among the bank managers on the decision of approving the line of activity.

In some cases, the candidates expressed their inability to run the untis after some time for want of sufficient and scientific training.

Some banks refused to advance the candidates as they resided beyond their jurisdiction.

Migration of candidates from the area of submergence due to irrigation projects also led to the non-advancement of loans to the candidates by banks.

Banks did not accept the change in line activity by the candidates from industry to business or servicing.

Banks insisted the applicants to provide guarantee though it is not required under the SEEUY Scheme. In turn, they were asked to make fixed deposits with the banks.

Wrong selection of line of activity and non-availabilty of suitable premises also led to the disinterest among the candidates to start the units.

Suggestions

In the light of foregoing analysis and findings of the study, the following suggestions are proprosed for better implementation and success of the scheme.

DICs should launch intensive campaigns for encouraging the educated unemployed in the rural areas to choose the self-employment ventures

The DIC should select genuine and more enterprising candidates adopting an effective testing method for identification of entrepreneurs. Soon after the selection of the candiates under the schem a panel should be prepared with atleast 1:4 ratio and ask them to submit their feasibility report of the line of activity, and after a careful perusal of the reports the candidates again should be interviewed regarding their future plans.

General action plan should be formulated by the committee in close co-ordination with relative departments particularly with the banks to reduce the hindrance faced by the beneficiaries.

DIC should help in appropriate selection of an activity ensuring technical feasibility and economic viability and validity of the project in consultation with the banks.

It is suggested to start the Gramodaya Beneficiaries Development Project for the betterment of the beneficiaries.

Setting up of Gramodayas Mini Industrial Estates at mandal level will reduce the problem of sheds or premises.

An apex agency may be started for better marketing facilities.

Periodical joint inspection of the schemes by bankers and officials of DIC and personal supervision of the beneficiaries will pay expected dividends.

Finally, it is suggested that the DIC should make socioeconomic and industrial survey at mandal level and prepare action plans. In addition to this, the DIC should monitor the loan utilisation in co-operation withthe bank officials in such a way that the objective of the scheme is achieved.

C. Subbarayudu, Dr. B. Mohan and Dr. N. Subbanarasaiah, S.V. University P.G. Centre, Cuddapah.

(Contd from page 7)

labour, and accuses the ruling Conservative Party of making anti-union legislation the centrepiece of its entire economic strategy.

A major theme of "People at Work" is that new legal rights will be necessary to promote the radical extension of industrial democracy. The idea is not to impose any particular mode o f industrial democracy but to widen the collective bargaining agenda beyond wages to crucial investment decisions which determine the performance of companies and the eocnomy as a whole.

Information & consultation

This indeed is the crux of the matter. In all the schemes introduced in India so far, the farthest that the Government has gone is to give joint councils the right to scrutinise balance sheets but not to participate in decisions on investments, purchases, prices or other expenditure. Workers' representatives are not taken into confidence in any of these crucial functions. The rights proposed by the Labour Party for the participative management forum would act as a catalyst for the extension of democratic involvement and accountability not only within the enterprise but also beyond it. It appears that the ground reality in India has a lot in common with the British Labour Party's proposals on participative management.

The employees and their representatives need information about the plans and activities of the enterprise if they are to play a constructive role. A general right to disclosure of information would naturally expand the range of the issues covered and make the company's books available for information. A right to information will only be effective if it is located in the context of the right to be consulted before decisions that may be harmful to workers' interests are taken. A right of continuous consultation would put union representatives in a stronger position to utilise the available information.

It has also been suggested that if enterprises have planning committees, they would boost workers' influence in economic management without involving responsibility for the entire enterprise. "People at Work" advocates a new right for employees to be represented up to and including boards of management. This right would allow them to develop a permanent and continuous influence over all aspects of enterprise planning

If any scheme of workers' participation in management is to be truly meaningful, it would be necessary to associate workers' representative with the decision making process up to the highest level and also to give them access to full information about all aspects— financial in particular— of the working of an enterprise. If the present Government wants to make the concept of participative management meaningful it has to make drastic changes in the existing scheme and also give it teeth by suitable legislative enactments.

Dryland farming: problems and prospects

C. Sekar

Though the contribution from dryland farming to the national food basket is not much presently, an optimistic approach towards the same can stabilise food production in the years to come, says the author. Analysing the problems of dryland farming, the author advocates for a new vision if further progress is to be made in dryland agriculture.

DRYLAND FARMING OCCUPIES a unique position in the agricultural scenario of the country. Cropping in dryland agriculture is said to be a gamble with monsoon. Crop production in drylands, in general and marginal rainfed land in particular results in low, unstable and uneconomic yield due to abnormality and uncertainty of monsoon rains. Dryland agriculture has a harsh and erratic climate with high degree of unpredictability of rainfall Dryland agriculture is mostly practised in tropical semi-arid regions. Improvement and advancement in dryland agriculture is found to be crucial in Indian Agriculture. More than 70 per cent of the arable land of 143.8 million hectares in this country is rainfed and major share (around 42 per cent) of cereals, pulses, oilseeds and raw cotton are obtained only from these lands. Eventhough the contribution from dryland towards the national food basket is only about 47 per cent, its contribution in the production of millets, coarse cereals, pulses, oil seeds and raw cotton is significant. Eventhough dryland agriculture continue to be low and unstable in productivity besides poor resource base, an optimistic approach towards dryland farming system will stabilise the food production in the years to come.

The technology for the dryland farming should give emphasis on the following:

(a) Soil and water conservation measures to effectively utilise the erratic, uneven and uncertain monsoon rains.

(b) Selection of suitable drought tolerent, early maturing crop varieties

(c) Evolving contingent plans to meet seasonal aberrations.

(b) Use of moderate levels of fertilizers. plant protection chemicals etc.

(e) Stability and sustainability in farm income

Problems

All that a dryland farmer has as his asset is his soil and the rainfall that falls on his land. If one could try to manage them efficiently, the productivity in drylands could be increased, the profitability enhanced, stabilised and sustained. The farmer having dryland cannot expect water to flow from distant catchments or tap water from deep acquifers. Unlike the irrigated farming the dryland agriculture has many constraints starting with climate, soils, crops and socio-economic conditions.

Rainfall is the crucial factor among the climatic parameters having great influence on the crops to be grown. Integration of soil conservation, afforestation, minor irrigation and other developmental activities into well prepared microwater shed projects based on the study of climate, water and plant resources on the one hand and man and animal resources on the other, offers great scope for bringing about sustained natural resource development. The rainfall is not only low but erratic, unpredictable and distributed in short period in rainfed areas.

The soils in dryland show great diversity in texture, structure, depth, type of clay and organic matter content. These variations result in significant differences in infiltration, erodability, moisture holding capacity, drainage characters and aeration An understanding of the soil properties, their potentialities and limitations is essential for better management of the same. Uncontrolled soil erosion has almost depleted the surface soil besides poor physical fertility, chemical fertility and biological diversity.

Besides soil and climate, still the currently cultivated dryland crops are found to be of long duration in nature without synchronising to the actual cropping seasons. Also they are low yielders and do not respond to improved packages of practices. In addition the present cultivars are not tolerent to drought, nutrient status, pests and diseases and

other soil related constraints hampering crop cultivation.

In general, majority of dryland farmers are very poor and economically unsound. This is due to non-availability of basic resources like, inputs and credit facilities at a reasonable rate at appropriate time. Moreover, drylands are found to be highly fragmented offering minimum scope for extending the advantages of farm mechanization. Also dryland farmers are suffering from poor infra-structural facilities, marketing and lack of good price for the farm products.

Management practices

The watershed treatments for the soil and water conservation are given below:

(a) Improving water conservation by contour cultivation, formation of ridges and furrows, basins, random tie ridges, broad bed furrows, compartmental bunding and farm bunds.
(b) Construction of check dams and percolation ponds.
(c) Inter-cropping and mixed cropping systems.
(d) Adopting sprinkler/drip method of irrigation, wherever possible.
(e) Following improved agronomical practices like summer ploughing, using seed-cum-fertilizer drill, seed treatment, seed hardening and maintaining optimum population.
(f) Integrated weed management practices.
(g) Soil fertility management and efforts to increase water holding capacity.
(h) Integrated pest and disease management.
(i) Mid-term correction-cotingent crop plant
(j) Price support for dryland products.

Integrated farming systems

Integrated farming system is nothing but diversification of crop farming with a view to better utilise resources like,land, labour, water along with high potential subsidiary enterprises like dairy, poultry, horticulture, scriculture, forestry, sheep and goat rearing, piggery and apiary to suit the different agro-climatic regions. Besides providing additional income, it will also generate employment throughout the year and raise the socio-economic conditions of the dryland farmers. Integrated farming aims at overcoming constraints of crop farming by adopting more than one component in the farm. This helps to best utilise the available farm resources in a better way to stabilise and sustain farm income.

For example, fodder for livestocks is got from crop enterprise and inturn farm manure and biogas from the cow dung are obtained from the animal component in the system. Crop-cum-forestry also offer scope for sustained production. Trees supply fuel, fodder and small timber for making farm implements; besides serving as a pulp (raw material) in paper and rayon industry. Similarly poultry farming for eggs and broilers for meat have gained momentum in the recent past. Sheep and goat perform better in dry tracts. It also serves as an insurance against drought. Though piggery has not found a place in rural areas because of social customs and habits, efforts are being made to popularise the same in dry farming regions. Thus the introduction of new components in the crop farming would minimise the risk in the semi arid regions of our country.

India has a sizeable area under horticultural crops. There are several advantages in raising horticultural crops in drylands. Fruit trees provide employment for the farmer and his family during off-season also. Nursery raising, budding, pruning, harvesting and packing will be a good source of employment for women and school dropouts. Ber, Jamun, custard apple, amla, pomegranate, wood apple, tamarind, west Indian cherry and cashew are some of the important aridzone fruit crops best suited for dry farming regions. Formation of ring basins with inward slope will be advantageous for these fruit crops. Crop + dairy is yet another combination, suited to dryland tracts. Under dairy component, two jersey cows may be maintained besides few Tellicherry goats under deep litter system. Under crop component fodder sorghum plus forage cowpea as an inter-crop may be cultivated. According to soil and climatic factors sorghum may be replaced with maize. In urban areas, poultry rearing is a remunerative enterprise. Piggery is yet another component offering great dividend. Wastes from nearby markets, hotels will form a good feed for pigs and reduce the cost of feeding.

Conclusion

Stability in crop production and sustainability of farm income in drylands can be brought about by land treatment, construction of farm ponds, percolation ponds and gully plugs, agro forestry, improved agricultural practices, integrating crop husbandry with animal husbandry and offering subsidiary occupations to dryland farmers during off-season. The future course of action for alleviating the sufferings of dry farming farmers and increasing production in drylands should direct at development of dryland agriculture on watershed basis, providing hire services at Panchayat level and providing limited mechanisation at farm level.Scientific plan utilization and animal utilization in drylands need urgent attention if a dynamic mixed farming is to be made employment intensive. While scientific research for dry-land agriculture can be done in agricultural Universities technology development can be done only in farmer's fields with active participation of farmers. Unless *individual initiative, group endeavour* and Government support become mutually reinforcing, the efficiency of farm management will continue to be low in rainfed areas where water harvesting and equitable distribution of the conserved rainwater are extremely important for higher and more stable production.

(Contd. on page 34)

Book Review

REGULATION AND DEVELOPMENT BY Sharad S. Marathe. Published by Sage Publications Pvt Ltd., M-32, Greater Kailash Market I, New Delhi 110 048. First published: 1986. Pages 328. Price Rs. 195.00

The author has competently discussed almost all relevant aspects of industrial development in India The book usefully traces the evolution of national thinking on major issues of industrial policy, underlining the continuity as well as the shifts in emphasis over a period of time. The author feels that while the regulatory momentum of industrial controls could not be checked, the changes introduced in policy and procedures from time to time were peripheral rather than radical According to him, the thrust of policy in the coming years needs to be towards removing systematically the constraints which have been inhibiting the efficiency and productivity in the Indian economy and particularly in the Indian industry, both public and private.

.In a span of ten chapters, the author describes quite eloquently and lucidly the phenomena pertaining to issues like industrial evolution, industrial policy, legislation for industry, industry in five-year plans, import substitution, public sector, dispersal of industry, pricing policy for industry and the future scenario. The author's experience in the economic ministries of the Central Government has helped him to have a firm grip over these issues and a new perspective is also developed by him in the process of analysing these.

On the issue of the licensing system, the author says that the Industries (Development and Regulation) Act assumed a very different character from what was originally envisaged. Instead of limiting itself to sanctioning creation of new capacity in specified fields at approved locations, the licensing system tended to become an all pervasive mechanism which laid down numerous conditions "The licence specified the maximum capacity of the undertaking and soon the capacity began to be equated with maximum production permissible for the undertaking" By the early seventies, the author points out, there was clear evidence that the licensing system in actual operation was not effective in terms of either achieving goals or as an instrument for planning It is, hence, the foresight of the present government that the licensing system has been significantly relaxed now The book is a readable treatise on India's industrial development.

Navin Chandra Joshi

India's Information Revolution Arvind Singhal Everett M. Rogers, Sage Publications, New Delhi New bury Park London Rs. 165/-

This book presents an encyclopaedic discussion on the posssibility and limitation of India's Information Revolution. India is far from becoming an information society which is characterised by Information as key element/basic resource; Computer as basic technology; and Interactive media that are demassified in nature as the nature of mass communication. In any case, India cannot be an information society of the type of US and Japan, because it has already missed industrial revolution, a fore-runner of information society. Although India is still primarily an agricultural country, it has many ingredients for becoming an information society in the future: political will, high quality universities and engineering institutions, brain power, low-labour costs, R&D investment and a large domestic market for consumer electronics products. The direction of India's Information Society will be typical Indian shaped by Indian culture and ethos.

According to the writer of the book, the purpose is to describe and analyse the recent social changes in Indian society resulting from applications of communication technologies. It is good that contributors made it amply clear that new communication technologies have only supportive role in development, and that, too, in the case of India only entertainment-education strategy of the Television Revolution may be successful. Television adopters in India are mainly urban elites with high incomes. While Indian television was originally designed to serve the national development goals, it is widening the information gap between the urban elites and the rural poor, as well as promoting a consumerist mentality Secondly, of late the VCR in India has served mainly as a means for gaining greater diversity in viewing what appears on one's television screen. VCR adaptation is off to a start, but just a start, in its diffusion in India (About 1 per cent of all Indian households own a VCR). Thirdly, India's experiment with high-tech micro-electronics, only indicate that in a labour intensive country like India, computers may substitute the potential jobs in way the great potential benefits which might otherwise accrue from India's information revolution are limited by its population growth rate, cultural diversity and its socio-economic inequality.

The book is well-written interpersed with useful graphs, case illustrations and references. Chapter on Communication and Development gives an historical account of communication scene and communication research with focus on India. Chapter 2 deals with importance of Information. In this the problem of brain-drain in India has been highlighted. Chapter 3 deals with the Television Revolution. The major points highlighted are: the gap between potential reach, and the actual users, role of soap operas in

developing popularity of TV and the social impacts of Indian Television. Chapter 4 deals with technologies (primarily television) and their social impacts. Chapter 5 on the video revolution, Chapter 6 on high-tech microelectronics development, and Chapter 7 on the telecommunications and computer revolution are mainly about high technology and its application and such new communication technologies as VCRs and computers. The last chapter on India's information revolution deals primarily with the summary of the whole discussion of the book.

This book is particularly useful to media persons who will contribute a crucial role in creating information society in India. along with scientists and Engineers.

Harsh Bhal

ECONOMICS OF IRRIGATION: A STUDY OF FARM PRODUCTIVITY, INCOME AND EMPLOYMENT UNDER TUNGABHADRA PROJECT: BY NAIDU, C.D.; PUB: SRI VENKATESWARA UNIVERSITY; TIRUPATI (AP) PP 200; PRICE NOT MENTIONED

Water is a life saving device for human beings as well as agricultural crops through out the world. Developing economies particularly have been facing the problem of non-availability of irrigation means for the rapid development of agriculture. Hence the need of the hour is to make all out efforts for the availability of water resources and also to make judicious and economic use of water for the acceleration of agricultural growth in developing economies in general and India in particular. The book is a modest attempt in this direction and is also a micro study on nature.

The book under review is the out-come of the author's doctoral thesis submitted at Sri Venkataeswara University for the award of Ph. D. degree. It consists of 6 chapters and a small bibliography and spreads over 200 pages. The central theme of the study is to evaluate critically the economics of irrigation, role and factors influencing efficiency of cannal irrigation, the progress of irrigation at micro-level and to bring to light the effects of irrigation on the economic conditions of the region (Tungabhadra Dam Site). The study also suggests a suitable strategy in planning of irrigation development so that agricultural production of the region in question in particular and in India as a whole in general could be maximised which is the need of the day.

The most noteworthy feature of the book is that it uses primary data and information for arriving at meaningful and purposeful conclusions which are highly revealing and may serve a better cause for the future planning in other areas of the country.

Dr. Badar A. Iqbal

AGRICULTURAL HOUSEHOLDS AND INSTITUTIONAL FINANCE; BY KRISHEWNA, R.R. PUB: B.R. PUBLISHING CORPORATION-NEW DELHI PP 180; PRICE Rs. 130/-

Rural India is the real India, where a la proportion of the population resides and by and la depends on agriculture. In rural India, a sizea proportion of people belong to the rural lab households and a majority among them are agricultu labour households. Landless among the agricultu labour households are the poorest of the poor anc a result, the problem of rural indebtedness has been the increase. This trend needs an indepth study of various facets of rural indebtedness and its interact with Institutional finance. The book under review step forward in the said direction.

The book comprises 8 chapters, 9 appendices bibliography and an index and it the outcome of author's doctoral thesis submitted at Andhra Prad University. The basic theme of the study is to coll and to bring to light all the available evidences on degree, extent, pattern and dimension of indebtedn among agricultural labour households wh accounts for one-half of the total rural work-forc

Elsewhere, the study reveals that" the burden debt of these households has increased over a peri of time and con-institutional agencies are dominant source from which nearly one-half of indebted households borrow at exhorbitant r of interest". Similarly, according to "a Commit Report" in rural India a child is born in debt, lives debt and dies in debt". Hence in such state of affa institutional agencies have to play a dominant role that indebtedness of the rural households could minimised On the whole the book is a welco addition to the existing literature on the subject a will be of greate value for all concerned.

Dr. Baduar A Iqb

(Contd from page 32)

Dryland agriculture needs a new vision if furth progress is to be made. Farmers will get enthused making greater efforts only if their toil in t scorching sun and rain could lead to a better standa of living. The Government should view dryla agriculture as an instrument for promoting ru prosperity and better quality of life. Dryland farme should occupy the pride of place in agricultu planning. Acceleration of land reforms, liberalizati of institutional credits at reduced rates of intere remunerative price support, organised marketir effective input supply system, introduction of vario farmer welfare-oriented schemes like crop insuran field guarantee scheme will help improve the soc economic conditions of dryland farmers. Th Government has to move in a big way to crea permanent assets with the dryland farmers a provide a dependable infrastructural support place them in a comfortable position in the society.

C. Sekar, Asstt. Professor, Tamil Nad Agricultural University, Kovilangulai

Development Diary

Free movement of wheat

The Government has lifted the ban on restriction on movement of wheat in the current Rabi season (April 1 to June 10). Farmers, traders or roller flour mills will be allowed to operate freely in the market. This follows the Government's expectation of a bumper wheat crop. Arrangements are being made to procure all the wheat made available to ensure that the wheat price in any mandi does not fall below the level of the procurement price of Rs. 200 per quintal. Arrangements are also being made for procurement upto 11.5 million tonnes as against the maximum procurement of 10.5 million tonnes made in 1986-87.

Sick mills looking up

British India Corporation and its subsidiary companies, producing woollen textiles, which were in the red ever since their nationalisation in June, 1981, have now turned the corner. The Kanpur-based British India Corporation's sales increased significantly from Rs. 12 crores during 1988-89 to Rs. 53 crores in 1989-90. According to the financial report of the company, it made a marginal profit of Rs. 2.32 crores during the financial year 1987-88. The company now plans to increase its production from Rs. 53 crores in 1989-90 to Rs. 75 crores in 1990-91. The Textile Ministry has asked BIC to work out a detailed inventory management programme to reduce its high inventory, take steps to speed up the realisation of outstanding dues and chalk out action to ease the liquidity crunch, the company is presently facing.

Drinking water

According to the latest official statistics, about 1,49,000 problem villages have been brought under the net work of safe drinking water supply facilities. There were over 1,62,000 villages lacking drinking water facilities at the beginning of the Seventh Plan. All the problem villages will have potable water during the first two years of the Eighth Plan under the time bound action programme.

Malaysia seeks indian medical expertise

Malaysia has requested the Government of India to enhance the intake of about 200 Malaysian students every year in various medical colleges in India and also depute medical specialists in their three medical colleges in Malaysia. This is to meet the shortage of doctors and medical teachers in that country. India has promised to help the Malaysian Government in meeting their medical requirements as far as possible despite the resource constraints in the Indian medical colleges, keeping in mind the special need of Malaysia.

Appreciating this point, Malaysia has offered contribution in creating infrastructure for additional seats to be provided to Malaysian students in the Indian medical colleges.

Indian scholarship for Sri Lankan students

The Government of India has decided to offer 500 scholarships to. students from Sri Lanka. Out of this 400 would be for undergraduate courses and 100 for postgraduate studies in various Indian universities. The University Grants Commission would arrange for admission of these students during the academic year 1990-91. The scholarships to Sri Lankan students are being offered following a formal request to the Government of India by Sri Lanka to enable Sri Lankan students to pursue their studies in India. The request has been made in view of universities in Sri Lanka remaining closed for some time because of disturbed conditions.

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Yojana: 33 Years ago

May 5, 1957

A hobby for every house

Shri Ambika Prasad Divya, Headmaster, High School, Ajaigarh, has discovered a very useful hobby for those who have time to pursue one. It is making tiles for our house roofs. Shri Divya has made a kind mould which can produce two tiles at a time. The mould is a very simple device and the method of working it is so simple that any person can handle it without difficulty. Perfect mastery can be achieved with a little practice. The size of the tile it produces is 12" x 8" x ½". The mould can be used for making clay tiles as well as cement tiles. The baking of clay tiles in a house cannot be convenient. But a cement tile can easily be produced in a house as it requires no baking and will be good for all seasons. It can also be produced at any time in the year.

One bag of cement with sand in the ratio of 1 to 5 can easily produce some 200 tiles. These cement tiles will be much stronger than the clay tiles and look more beautiful too.

The tiles which are at present used in our houses are generally produced by local potters, who make them with their hands without the aid of any mould or machine. The result is that they are untidy. Economically too we are not greatly profited by using them as they have to be used in large numbers and a good number of them is damaged each year. The cement tiles, if once used, will last for years and will not require resetting or readjustment again and again.

★ ★ ★

Mr. R.K. Karanjia of Blitz writes: "The role of the Editor in national development"!

My good friend, the Managing Editor of a Delhi newspaper, seemed shocked when this question was put to him by a Chinese journalist in my presence. His reply, after he had recovered his wits, was that an Editor's business was news and, as such, he was not concerned with playing any role in the development of the nation, which was the job of politicians and planners.

My friend's is not an isolated case of this 19th century mentality prevailing in the Indian press. He was merely speaking for the orthodox concept of an editor isolated from the life and work of the people within the walls of his office cabin. From that closed cell in which he works, he does not see that there has been a revolution in the business of journalism, breaking the walls of the cabins to which editors, writers, authors and journalists had so far been confined.

First-hand contact with the work and play, the aims and aspirations of the broad masses of people has today become a must for any public man, most of all newspaper editor. Like governments, ministries and other institutions which proudly prefix the qualification of "popular" or "people's" before them, the Fourth Estate too has ben revolutionised by what is called the popular journalism, the people's press.

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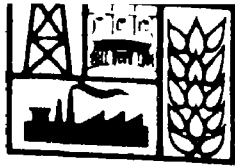
* BALANCE OF PAYMENT

* TEA

* DAIRY DEVELOPMENT

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Development Diary

Lasers

For the first time in the country, Haryana State Electronics Development Corporation Ltd. (HARTRON) is to manufacture and assemble lasers and laser-based instruments indigenously. The Corporation has already got a Letter of Intent from the Government and the technology for the project has been tied up with Bhabha Atomic Research Centre and IIT, Madras. The project has made substantial progress and the lasers and associated equipment will be in the market in four months or so. At present, these items are being imported and thus their applications and growth are highly restricted.

In the first phase, HARTRON is planning to manufacture low power He-Ne lasers and laser based educational kits mainly used in science and engineering colleges. In the second phase, the Corporation will manufacture high power lasers and laser-based test instruments for industrial applications. Lasers and laser based instruments also have wide applications in defence and para military forces.

Strategy for reduction in poverty

The estimates based on provisional results of the National Sample Survey for the year 1987-88 show that poverty in rural areas came down to 32.66 per cent from 40.4 per cent estimated for the year 1983-84. The overall economic growth, as reflected in the growth of the Gross Domestic Product (GDP) in 1987-88 over the year 1983-84, was 18.3 per cent. Seven States have recorded a significant reduction in poverty during this period. They are: Bihar, Gujarat, Kerala, Madhya Pradesh, Rajasthan, Uttar Pradesh and West Bengal.

Reduction of poverty was sought to be achieved through the dual process of economic growth and poverty alleviation programmes during the Seventh Plan period. The new strategy being evolved for the Eighth Plan, is expected to concentrate on poverty alleviation through accelerated employment generation along with a more effective and better targeted provision of basic services to vulnerable groups.

Telecommunication in remote areas

The Government has taken a decision to bring all the Panchayats into the telecommunication network by using modern transmission media like radio systems, PCM systems etc. It is also proposed to have small sized telephone exchanges upto 16 lines capacity at the lower end so that the subscribers can have telephones even in smaller places. Thus the rural areas in remote villages will be progressively brought into the national telecom network.

Cheaper wheat and rice to two districts of Assam

The inhabitants of two districts of Assam— North Cachhar and Karbi Anglong—will now start receiving foodgrains at cheaper rates. The Government has decided to bring these districts under the purview of its scheme for supply of wheat and rice at specially subsidised prices to the inhabitants of Integrated Tribal Development Project (ITDP) areas and tribal majority States. Implemented in December 1985, the scheme so far covered 191 ITDP areas in 17 States and two Union Territories as well as the tribal majority States/UTs of Arunachal Pradesh, Mizoram, Meghalaya, Nagaland, Lakshadweep and Dadra & Nagar Haveli.

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YOJANA seeks to carry the message of the plan to all sections of the people and promote a more earnest discussion on problems of social and economic development. Although published by the Ministry of Information and Broadcasting YOJANA is not restricted to expressing the official point of view. YOJANA is issued every fortnight in Assamese, Bengali, English Gujarati, Hindi, Kannada, Malayalam, Marathi, Punjabi, Tamil, Telugu and Urdu.

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India's balance of payments: problems and prospects

Neela Mukherjee

In this analysis, the author notes that the pragmatic course of action in the face of the current balance of payments situation would be to set priority on imports on the basis of their importance to the economy. Blanket import liberalization is just ruled out. The author says, the country has adopted diverse strategies for the purpose and hopes that with her experience and openness to experiments, she will overcome the odds.

IN HER DEVELOPMENTAL experience of nearly forty years balance of payments has not been a smooth sailing for India. She has often been confronted with crisis situations on her balance of payments front and has been required to make periodic adjustments in her policy-stance thus experimenting with different combinations of options available. Foreign exchange crises have occured in spurts. One such appeared in 1957 because of India's heavy imports made for massive industrialisation programmes under such a strategy. The crisis was however overcome by attracting considerable foreign aid from developed countries. Again in 1966, the situation was such that the rupee was devalued by 57.5 per cent against the U.S. dollar in order to raise export earnings and overcome the payments crisis. Later in the seventies, India's balance of payments was exposed to major oil price shocks of O.P.E.C. in 1973 and 1979 which brought about large increase in prices of mineral oil imports. This made India's import bill increase by leaps and bounds since India was quite dependent on imported oil to meet her domestic requirements. This phase was however, overcome by attracting large inflows of private remittances from Gulf countries sent by migrant labourers from India.

Another interesting phase which India experienced in the second half of the seventies was the crisis of plenty. During this phase, the country accumulated huge stocks of foreign exchange reserves mainly through migrants' remittances from abroad and was faced with the problem of their proper utilisation. Subsequently, such reserves were utilised by India to meet her balance of payments deficit during the second oil price increase by O.P.E.C. in 1979.

The situation has reversed altogether in the second-half of the eighties when India is reeling under huge trade deficits and heavy debt obligations. Her foreign exchange reserves have reached a rock bottom position and, she is struggling to find a workable strategy of maintaining import liberalisation on one hand and lowering of debt service obligations on the other. The present paper focuses on the position of India's balance of payments, the future issues and the policy options available. If one examines India's balance of payments in the eighties one cannot escape two areas of concern, first, the huge trade deficit and second, the mounting debt service obligations.

The trade d[illegible]

India's trade deficit increased from Rs. 5871 crores in 1983-84 to reach a peak of Rs. 9586 crores in 1985-86 after which it declined marginally by –2.4 per cent and –0.6 per cent during 1986-87 and 1987-88 respectively. The trade deficit, on average, has been of the order of Rs. 9412 crores during 1985-86 to 1987-88. As a proportion of India's Gross Domestic Product it has been around 3.2 per cent during 1985-88. Such large deficits have been caused by the disproportionate size of imports vis-a-vis that of exports. The import liberalisation policy in the eighties has been the single important reason for the quantum jump in imports. The import liberalisation policy was undertaken primarily to promote exports and upgrade technology. The growth of exports has been very impressive in the eighties. India's exports of manufactures made for record growth in India's exports. Principal items were leather and leather products, textiles, garments, basic chemicals and jems and jewellery. Share of such items in India's total exports were 28 per cent in 1980-81 which increased to 50 per cent in 1987-88. However, export growth has not been as high as to make exports catch

up with the size of imports and the burgeoning trade deficit is the resultant outcome. In rupee terms, India's exports have grown at an average rate of 12 per cent per annum during 1981-88 as compared to a growth of 10.8 per cent per annum in imports. However, the higher growth in exports vis-a-vis imports has not been enough to match the deficit. Hence the trade deficit continues to be voluminous.

Although export promotion efforts have been taken up on a priority basis and several types of export incentives have been offered, rise in export earnings has been grossiv inadequate to match import payments. Table I shows the ratio of exports to imports. On average, India's export earnings as proportion of India's import payments has remained around 60 per cent during 1980-81 to 1987-88. The smaller the ratio of exports to imports the higher are the requirements of funding imports from sources other than export earnings.

Neither has India's export growth raised India's market-share in world exports to any considerable extent. India's exports have remained a minescule proportion of total world exports moving around an average of 0.5 per cent in the eighties. In effect, India's export promotion efforts have neither led to raising of the ratio of exports to imports nor in raising of India's share in world exports.

Another point which needs to be mentioned in the growth of exports is the growth performance of import-intensive exports. For instance exports of cut and polished diamonds which is earning sizeable foreign exchange involves large scale import of raw materials namely diamonds themselves. Hence rise in import-intensive exports is actually raising import payments and consequently the trade deficit. The import-intensity of exports has increased in recent years.

Table I

Year	*Exports as % of Imports*	*Net Private Transfers as % of Trade Deficit*	*External Assistance as % of Trade Deficit*	*External Commercial Borrowings as % of Trade Deficit*
1980-81	52 4	37 8	20 9	4 6
1981-82	55 9	36 3	16 0	4 3
1982-83	61·3	43 7	24 3	6 1
1983-84	63 4	47 3	22 9	9 3
1984-85	64 0	46 1	19 6	16 4
1985-86	54 7	29 4	17 9	12 9
1986-87	58·7	31 8	21 4	17 9
1987-88	63 8	37 6	32 2	14 4

Note: Exports and imports relate to merchandise account only. All estimates relate to India's balance of payments statistics

Source: Estimated on the basis of Report of the Economic Advisory Council on THE CURRENT ECONOMIC SITUATION AND PRIORITY AREAS FOR ACTION, Government of India, December, 1989

Financing of imports

As far as financing of India's imports are concerned we saw above that export earnings are grossly inadequate to finance imports. They constitute on an average 60 per cent of import payments. The other major ways to finance imports are through migrants' remittances sent from abroad, external borrowings and drawing down of foreign exchange reserves. As far as the latter option of drawing down of foreign exchange reserves is concerned, India's use of such means was grassly limited because of low levels of such reserves. As far as migrants' remittances are concerned they did play a crucial role in financing of imports in the second half of the seventies when they made for nearly 97 per cent of India's trade deficit during 1975-79. With collapse of the Gulf boom, however such inflow of remittances shrinked in the eighties in relation to the trade deficit and made for 42 per cent of such deficit during 1980-84 and subsequently 32 per cent during 1985-88.

In the eighties, the prospects of external assisstance have been quite bleak. The industrialised countries are having problems of macro-economic stability and higher commitments of foreign aid do not appear very plausible. For India the role of foreign aid in financing of trade deficit has declined drastically, from 80 per cent in the sixties to an average of nearly 22 per cent during 1984-85 to 1987-88. As far as external commercial borrowings are concerned their role in financing of trade deficit increased over the years from nearly 4.5 per cent during 1980-82 to about 15 per cent during 1985-88. This was in consequence of the Government decision since 1982-83 to borrow from the International Capital Markets to the extent that the availability of concessional aid fell short of the requirments for external resources.

Debt servicing

India has accumulated a huge debt burden. India's total external debt inclusive of external assistance, commercial borrowings, suppliers' credit and Non-Resident Indians' deposits is a sum of Rs. 82, 985 crores at the end of 1988-89. Both the constituents of debt servicing, principal repayments and interest payments have been regularly rising. Prior to the eighties, India experienced a low growth of debt-servicing although she had a high component of foreign borrowings to meet her trade deficits. In the pre-eighties the factors which made for low growth of debt-servicing were as follows:

(i) Soft loans from multilateral institutions especially IDA loans from World Bank formed 60 per cent of India's external loans. Low interest on IDA loans with long maturity periods favourably affected. India's debt servicing; (ii) India's borrowings from private capital markets were on a low key and (iii) grants constituted nearly 32.7 per cent of India's total external assistance during 1974-82.

The position on debt-servicing changed radically in the second-half of the eighties. A combination of forces created such a position. The major forces can be outlined here.

(i) Since exports lagged much behind imports additional external borrowings became necessary for carrying out the policy of import liberalisation which had its deleterious impact on the debt burden.

(ii) In 1981, India utilised 3.9 billion SDRs from IMF loan of 5.0 billion SDRs under the Extended Fund Facility. The repayments are currently being made to IMF which have also raised debt servicing to that extent.

(iii) Debt servicing has increased sharply again due to major changes in the structure of debt and terms of credit. Given the high requirements of India's foreign capital and the uncertainty and slowing down of foreign aid, India's borrowings from commercial sources have increased in the eighties. India's terms of external borrowings have also hardened over the years. The average rate of interest has gone up from 2.5 per cent in 1970 to 5.7 per cent in 1987, the average maturity has declined from 34 years in 1970 to 23 years in 1987 and even the average grace period has fallen from 8 years in 1970 to 7 years in 1987. This is different from the experiences of many low income countries like Burma, Malawi, Uganda etc, whose terms of borrowing have softened considerably over the same period. has fallen from 8 years in 1970 to 7 years in 1987. This is different from the experiences of many low income countries like Burma, Malawi, Uganda etc. whose terms of borrowing have softened considerably over the same period.

(iv) The exchange rate depreciation of the rupee has also raised. India's debt servicing in rupee terms. During 1980-86 nearly one third of the increase in India's debt servicing in rupee terms has been due to depreciation of rupee against U.S. dollar.

India is required to borrow more not only to meet a part of her trade deficit but also to meet higher debt obligations. Such borrowings would also add to future debt obligations. Currently, the ratio of debt service to exports is 38 per cent which is quite high by the safe limit of 20 per cent. A country has the option of servicing its debt either by augmenting its export earnings or by going in for additional borrowings. For India, the scope for augmentation of export earnings is limited. Export earnings are inadequate both for import payments and debt-service obligations. Hence, higher borrowings are inevitable for meeting debt-service obligations in addition to meeting a part of the import bill.

Conclusion

It is difficult to be optimistic about India's balance of payments in the coming years. Even if imports do not increase and the trade deficit remains at the present level, debt servicing would surely increase becuase the country would require additional foreign funds not only for financing trade deficit but also for meeting debt service obligations.

However, imports are likely to increase even if the pace of import liberalisation remains the same. One major increase may come through oil imports In the domestic sphere, the oil gap would make for sizeable imports. Although oil production has increased from 16.2 million tonnes in 1981-82 to 30.4 (provisional) million tonnes in 1987-88 the future does not hold much promise. With no significant additions to recoverable reserves production has reached a plateau of 30 million tonnes with energy consumption increasing at an annual average rate of more than 8% per annum. The future calls either for increase in the quantity of imports or cut in the rate of energy consumption. The latter alternative does not appear quite feasible in a developing country which is moving from lower consumption of energy to higher levels of energy consumption. Again any bad year with failure of monsoons would lead to fall in agricultural production and increase in food imports and raising of total import bill to that extent. Further, any good agricultural year would require higher import of fertilisers. Hence, a part of imports would vary with the conditions prevailing in the domestic economy whereas others like oil imports would have a secular rising trend.

The international situation is also highly volatile and there are distinct developments in the international scene which have adversely affected the balance of payments scenario of developing countries like increased protectionist tendencies of the developed countries hitting exports from developing countries and the bleak prospects of foreign and since the seventies. Whereas, the requirements for external finance of developing countries have increased in the seventies and the eighties the availability of foreign aid has shrinked and the terms of borrowing have also hardened considerably. In the immediate future there is no respite from either protectionism or shrinking of foreign aid and the only pragmatic course of action for India would be to seek self-reliance in her balance of payments. By self-reliance, I mean that emphasis on import liberalisation has to be pegged with the probable export growth in immediate future and the growth in debt servicing obligations. All imports have to be prioritised on the basis of their importance to the economy. Blanket import liberalisation is altogether ruled out under the present conditions. Such prioritisation has to move with priorities and objectives of the Eighth Five Year Plan. The external sector should be handled in such a manner that it helps in smooth growth of the economy rather than

(Contd. on page 11)

Tea Production in India: Retrospect & Prospect

Dr. S.S. Khanna, A.C. Garg & Brij Bhushan

Tea, which enjoyed a place of pride in export, is fighting a grim battle. It is turning out to be incompetitive, lacking in glamour and market intelligence. The authors list a series of measures and hope it will help in cheering up the sagging spirit.

TEA IS THE MOST popular drink in India. Some people start their day with bed tea and close the day with tea after desert. South-East Asia is considered to be the original home for tea. Assam is the mother state of tea in India. It was in 1823 when Robert Bruce noticed tea shrubs grown wild in this region. Thereafter cultivation of tea started on a large scale extending to North-Eastern parts and also Nilgiris in South India

Tea grows well in tropical and sub-tropical climate having temperature in the range of 60 ° - 90° F, humidity not less than 15% and well distributed rainfall throughout the year.

The tea sector has a vital role in the development of national economy from the angle of its contribution to foreign exchange earnings, employment generation particularly for women and persons belonging to the weaker sections of the society. It helps in maintaining ecological balance by preventing soil erosion. India continues to be the main exporter of tea in the world, but its declining share in the global production and export of tea causes a great concern. In the paper, an attempt has been made to analyse past performance, identify bottlenecks/constraints and suggest remedial measures for boosting production and export of Indian tea.

Looking at the production performance of tea in the past. it grew at the rate of 2.5% p.a. during 1950 to 1986. It was a marked improvement over the growth rate of 1.86%, 1.5% and 2.2 % worked out for the pre-planning decades i.e. 1920-30, 1930-40 and 1940-50 respectively. In the eighties, tea production grew at the rate of 2.3% p.a. which was on a low side as compared to 3% growth rate achieved for the preceding decade of 1970-80. But the actual tea production registered a phenomenal growth, rising from 168 million kgs. in 1916 to 285 million kgs. in 1951 and further to 618 million kgs. in 1986-87, 685 million kgs. in 1987-88 and 701 million kgs. in 1988-89. The production expected during 1989-90 is, however, 690 million kgs.

As regards tea productivity, it significantly moved up from 549 kg. per hetare in 1920 to 881 kg/ha in 1950 and further to 1494 kg/ha. in 1980. In 1985, it stood at 1641 kg/ha which has been a marked improvement over the productivity peaks achieved in the past.

On the international scenario, tea productivity in India is lower compared to 2146 kg./ha in Malawi, 2033 kg/ha in Turkey, 1755 kg/ha in Kenya and 1575 kg/ha in Japan. It is pertinent to mention that yield of Indian tea is higher than the yield of 889 kg per hectare in Sri Lanka which attains the status of "second largest tea producing country in the world." Regarding growth rate of tea productivity, it has registered an annual growth rate of 3 2 per cent during the pre-planning era covering the period from 1940-1950. It never touched this level of growth rate in any decade in the period from 1950-1986. The historical growth rate for the period 1950-86 represented the the same level of 1.7 per cent as already achieved during the year 1920-50. In the Eighties, it grew at the rate of 1.2 per cent per annum. It was lower than the growth rate of 2.3 per cent recorded in the seventies.

Regional disparity

Tea sector does not indicate balanced development of tea productivity in the tea growing states. There is a considerable difference between yield rate of North Indian and South Indian tea gardens. In South India while the tea productivity is about 2000 kg./ha., it is 1600 kg./ha. in North India. The productivity variation could be seen as follows:—

Average Yield Kg./ha. ([illegible])

A.North India	Assam	W. Bengal		1576
Level of Productivity	Dibrugarh	Cachar	Dooars	Darjeeling
1. High	2116		1853	
2. Low		986		652

B. South India				1926		
	Tamil Nadu		Kerala		Karnataka	
	Madurai	Kanyakumari	Trichur	Kottayam	Courg	Hassan
1. High	3073		3145		2196	
2. Low		480		195		1922

Source: Tea Statistics, Tea Board 1987

The existence of regional and intra-regional disparities in tea productivity reveals that no significant progress has been made in the field of research with a view to develop High Yielding/good quality materials suitable for different agro-climatic areas.

The growth of tea production is also inhibited by variations prevalent in the productivity level of different categories of tea gardens and estates. Table-1 below indicates a big gap between the productivity of small gardens and big tea gardens.

Tea productivity of all categories of tea gardens in North India-small, medium and big gardens, is much lower than the productivity of the similar gardens in the Soutn India. From the big tea gardens in both the regions, much higher productivity could be obtained by replacing the old shrubs and adoption of modern scientific and technological break-through. The small tea gardens do not perform well mainly because of non-availability of required financial support.

Distribution of area under tea cultivation by age of tea bushes is shown in Table-2:

In 1986, total area covered under tea cultivation was 3 76 lakh ha. of which old tea bushes of above 50 years accounted for 1.61 lakh ha. (43%) and young tea plants of the age of 10-30 years represented 24 per cent of the total area. The very young tea plants below 10 years accounted for is 56,000 ha. (15%). This indicates the slow rate of new planting and replacement of old and uneconomic tea bushes with High Yielding types. It is therefore imperative that for accelerating production level, the rate of removing the old and unproductive tea bushes and their replacement with High Yielding varieties is speeded up.

Table II

Area under Tea Bushes according to age-group as on 30.12.19[illegible]

(Lakh Ha.)

Age	Below 10	10-20	30-50	More than 50	Total
1. Assam	0.37	0.59	0.40	0.67	2 03
2. West Bengal	0.12	0.20	0.12	0 49	0 93
3. Others	0.01	0.01	0.02	0.02	0 06
4. Total North India	0.50 (17%)	0.80 (26%)	0.54 (18%)	1.18 (39%)	3.02 (100%)
5. Total South India	0.06 (8%)	0.11 (15%)	0.14 (19%)	0.43 (58%)	0 74 (100%)

Source: Tea Board, Tea Statistics 1987

Generally India's export share exhibits a declining trend, falling from 46 per cent in 1950 to 26 per cent in 1980 and further to 22 per cent in 1986. Table III highlights the share of India to the world production and export of tea during 1950-86:

The declining share of India to the world export of tea reveals a shift in the approach of tea plantation sector. The emphasis has been on fulfilling the commitment of domestic needs of the country first. Since there is a good market in the country the shift towards export has been negligible. Tea consumption in India is growing very fast and will continue to grow faster due to change in food habits and increase in per capita income. Domestic consumption of tea recorded an annual growth rate of 4.98% between 1950 and 1986 which was much higher than 2.28 per cent growth rate of tea production for the same period.

The global picture of tea export shows that India used to dominate the world market by maintaining

Table-I

State-wise & Area wise disparity in Tea Production

(Kg./ha)-1986

State	Upto 8	8 to 50	50 to 100	100 to 200	200 to 400	400	Total
Kerala	N.A	573	200	1421	1522	1759	1397
Tamil Nadu	„	828	1394	2099	2421	2286	1694
Komalaba	„	965	1632	2131	–	–	2164
South India	„	752	915	1799	1972	1968	1568
Assam	604	611	721	1471	1490	1603	1496
West Bengal	–	400	1240	972	1290	1586	1428
North India	379	566	729	1218	1417	1598	1457

Source: Tea Statistics-Tea Board 1987.

Table III

(Mill. Kgs)

Share of India to the World Tea Production and Export

	Prodn. of Indian tea	*World Prodn. of tea*	*% age share*	*Export of Indian Tea*	*World Export of Tea*	*% age Share*
1950	278	640	43	183	403	45
1960	321	948	34	103	530	36
1970	419	1313	32	202	651	31
1980	569	1836	31	224	859	26
1981	560	1870	30	241	853	28
1982	561	1932	29	190	820	23
1983	581	2029	20	208	872	24
1984	640	2184	29	217	943	23
1985	656	2070	32	214	965	22
1986	625	2233	28	202	932	22

Source: Hand Book of Plantation Facts-UPASI 1987

the status of largest exporter of tea till 1985. In 1986 the position changed and it ranked number 2. Export of tea in terms of volume from India represents negative growth rate i.e (-) 1.7% during 1980-86. While new tea producing countries like Kenya, Malawi and Indonesia have made a significant progress in the export of their tea. The export performance of Indian tea in comparison with the other tea exporting countries is illustrated in Table IV.

Table IV

Export performance of Major Tea Exporting Countries (Compound Growth Rates) (%)

	India	*Sri Lanka*	*Kenya*	*Indonesia*	*Malawi*
1950-60	0.05	3 23	9.62	2.37	4.88
1960-70	0.05	1 14	11 76	0.02	4 81
1970-80	1.03	(-) 1 20	7.58	6 25	5 88
1980-86	(-) 1 74	1.98	7 64	2 83	3 26
1950-86	0.27	1 20	9 30	2 90	4.86

Export of Indian tea to the major tea consuming countries indicates a declining trend. Out of the 16 major tea importing countries, export of Indian tea to 10 countries represented negative growth rates for the period 1981-82 to 1986-87 as may be seen from Table V below:

The bulk of Indian tea is exported to USSR, U.K. and Middle East countries. But the share of Indian tea to the total import of tea by U.K had gone down from the level of 64.9% in 1950 to 14.2% in 1985. While tea export by East Africa to U.K. substantially rose from 2.8% to 54 % during the same period. The share of India to the import of tea by other major countries like U.S.A., Canada, Australia and New Zealand has drastically gone down. On the other side, export in terms of unit value has increased from Rs. 29.53/kg. in 1986-87 to Rs. 30.50/kg in 1988-89. The constraints in the export of Indian tea are (a) inability of Indian tea to compete on price and quality fronts in the international market, (b) dependence on realising the high unit value, (c) lack of export promotion measures like publicity for popularising Indian tea abroad and developing the taste of foreign consumers for Indian tea, and (d) Non-development of International market intelligence.

Table V

Trends in the Growth of tea exports from India to major countries during 1981-82 to 1986-87

Sl. No.	*Countries of destination*	*1981-82*	*1986-87*	*1981-82 to 1986-87 (Compound Growth Rates)*
1.	United Kingdom	434 13	343.99	-4.55
2.	Ireland	43 96	25 84	-10.08
3.	West Germany	45.64	37 06	-4.08
4	Netherlands	13 76	22 22	10.06
5.	U.S S.R	750 12	872 9	3.8
6	Poland	142.78	63.03	-15.09
7.	U.S.A.	31 69	26 39	-3.59
8.	Canada	18.73	12 88	-7.22
9	A R.E.	148 34	156.76	1.11
10.	Iraq	75 73	53.66	-6.66
11.	Iran	58.74	110.97	13.57
12.	U A E	107.66	48.73	-14.66
13.	Saudi Arabia	19 54	28.01	7.47
14.	Afghanistan	86 39	14.09	-30.42
15.	Japan	10.58	12.36	3.16
16.	Australia	16 43	9 16	-11.03
17.	Other Countries	287 78	124 27	-12.17
	Total	2242.00	1962 32	-2.83

The following strategies are suggested for boosting productivity, production and export of Indian tea:—

(i) Intensification of research activities to develop high yielding planting materials suitable for different agroclimatic zones/regions.

(ii) Training of field staff and laying of field demonstration for upgrading skill and knowledge of small growers regarding scientific cultivation and better management of tea gardens.

(iii) Speeding up replacement of old tea bushes by newly developed high yielding varieties.

(iv) Coverage of more area, particularly marginal and sub-marginal lands as well as delineated areas with high yielding varieties.

(v) Making available to farmers the improved variety saplings at reasonable rates particularly to small and marginal farmers

(vi) Formulation of Special Action Plan indicating short term measures for bringing the prductivity of small growers at least upto the level of all-India average.

(vii) Removal of regional disparity in tea productivity by adoption of suitable measures.

(viii) Adoption of proper drainage, pest management and irrigation system with an area based approach.

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Tea Industry needs revamping

Dhurjati Mukherjee & Patatri De Sarkar

Increased internal consumption and increasing exports call for drastic increase in the production of tea. This is possible only by increasing the per hectare yield through replacement of old bushes and old processing machinery, the authors feel.

INDIA'S PRODUCTION OF TEA HAS GONE FROM 674 million kgs in 1987 to 701 million kgs in 1988 and export increased from 209 kgs to about 222 kgs during the period. But in 1989, the production declined to around 690 million kgs, and though shipment licence issued was for 223 million kgs, it would be safe to expect an export level of 215 million kgs. Export of tea however, needs to be boosted further for which India will have to do a lot of promotional work in foreign markets. To achieve this objective, the Union Commerce Minister, Mr. Arun Nehru, has recently decided to prepare an action Plan with emphasis on increasing tea production, augmenting exports to general currency areas and making the Tea Board's overseas offices more effective.

It can be seen that since independence, India has recorded uniform growth in tea production. During the first year of the Eighth Plan though the production target of 756 million kgs may not be reached, it is expected that a production level of around 730 million kgs could be achieved. The projected figure for the final year of the Plan, that is, 1995-96 has been placed at 876 million kgs and 1093 million kgs by the turn of the century, according to the UPASI document.

Since the beginning of 1989, the weather was not kind to the North-Eastern region, particularly the Dooars area which is one of the main centres of tea production. Similarly drought like condition in South India affected production. While North India was marginally higher by around 10 million kgs. at 539 million kgs. in South India the output declined to 151 million kgs from the record 172 million kgs achieved in 1988 However, it is expected that in 1990 the production will pick up considerably to offset the reverse suffered in 1989

There are certain intrinsic problems which India has to face. The first problem with Indian tea is that its yield is quite low by world standards. The present per hectare yield is around 1600 kgs. This is mainly because of the old bushes which are more than 25 years old, if not more, and at this stage, the yield of tea is very low Secondly the tea processing machinery has become old and obsolete giving low production. Thirdly, the tea industry bears a very high incidence of tax burden. But, despite all these problems, the export of tea has been maintained at around 220 million kgs.

The Indian Tea Board has formulated several result-oriented programmes to explore the "vast potential" of Indian tea and promote its exports to several European countries including West Germany Poland, France and Belgium and to launch a massive campaign for Indian tea in the European market. The need for extensive promotional campaigns and for revitalising its overseas offices merits special attention and this has been voiced in several forums and even by the Commerce Minister. Attempts should be made to boost value added exports to the Western countries, Specially to UK which is the largest consumer of world tea as also to the U.S.S.R. In fact, the total Russian buying this year has been 110 million kgs and this could easily be increased to 135 million kgs in 1990 according to the trade protocol One may refer in this context to the recommendations of the National Committee for Long-Term Strategy on Tea which has observed that the proportion of export of value-added tea in India still remains small— 15 per cent to be precise compared to 30 per cent of Sri Lanka's tea exports.

Turning to the packet tea, we can see that target for packet tea exports has been fixed at an ambitious 50 million kgs. While financial constraints did not allow a sudden breakthrough, the Tea Board wanted leading Indian packet tea exporters to enter into business tie-up with the leading distributors in these markets. The Tea Board has made its fund available for the promotion of those brands which would be

exported through such tie-up but possibly more efforts would be needed.

Finally, India can do a lot of work in foreign markets, especially in hard currency markets and possibly now in the East European markets. Tea is marketed in small packets or in tea bags and brand names popularised through advertisements. It is here that promotional efforts have to be geared up, both by the Tea Board and the trade directly so that Indian quality brands become more popular and acceptable in the West.

The internal demand has been estimated to rise at 4 per cent every year and it is felt that production increase has to be at least 25 to 30 million kgs. every year to satiate both exports and internal demand. It needs to be pointed out here that till now no professionally conducted survey has been made to assess the exact quantum of internal consumption and the percentage increase every year. A market research body should be commissioned by the Government to carry out the survey and examine the possibilities of increase of internal consumption by the turn of the century.

Table : Production Targets

(In million kg)

Year	All India	South India
1990-91	756	170
1991-92	784	175
1992-93	814	180
1993-94	844	185
1994-95	876	190

Table II

Production, Export & Home Retention

Year	Production	Exports	Likely Home Retention
1990-91	756	235	521
1991-92	784	240	544
1992-93	814	245	569
1993-94	844	250	594
1994-95	876	255	621

Source: Eighth Five-Year Plan A Development Perspective, UPAST, March, 1989

Taking into consideration the internal demand and the increasing exports drastic production increase is an immediate necessity. This can only be possible if R&D efforts are geared up and for this an integrated R&D package has to be evolved by the research institutions like the Tea Research Association and the UPAST Tea Research Institute, if necessary, in collaboration with the agricultural universities. But expenditure on tea research has been rather low compared to other agro products and this point is being exphasized for quite some time at various forums and recently at the International conference on Tea Research: Global Perspectives held in Calcutta recently. Thus the Government, and specially the Tea Board. Should pressurise the companies to earmark a larger portion of profits for tea research but even the promised amount from the companies of North India for the tea research fund has not been given.

Questions have been raised and quite rightly whether the producer companies are seriously interested in increasing production and productivity. As auction prices have almost doubled compared to that of last year there has been a feeling that the producers are not interested to increase production substantially to keep the prices on the higher side. It is here that the Government has to come out with an iron hand and fix up a target for each of the producer companies at least for the top 25 or 30 There can be no denying that though there has been much talk of increasing production and productivity, very little has been done in this regard. Possibly a high-power Committee with Central and State Government officials, representatives from the Tea Board and also from the producers and the buyers may haveto be constituted urgently to tackle the situation effectively.

The nineties should be a challenge to all producing countries, including India, who have to make determined efforts to increase production and productivity, on the one hand and to break the monopoly of the transnational corporations and market quality Indian tea directly in the Western markets. In this endeavour, tie-ups between the Indian and the Sri Lankan Tea Board which is being envisaged may be a step in the right direction though such collaboration may be difficult to achieve. But unity of the producer countries may be necessary to meet the increasing demand for tea. which is gaining acceptance as a healthy and refreshing drink the world over. □

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(Contd. from page 6)

creating hindrances in the process of growth. The degree of import liberalisation needs to be determined mainly by export earnings and debt servicing. Or else, without a proper framework for import liberalisation and upper limits determined by the country's capacity to do so the balance of payments situation may become explosive heading towards a major crisis. In the case of India she has adopted diverse strategies to tackle her balance of payments front and her long experience only shows that she has never ceased to experiment and to improve upon her strategies and learn from her past performance

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New incentive schemes for tiny industries

Dr. K. Natarajan

In this analysis, the author suggests the creation of a separate institution or separate incentive schemes for healthy growth of tiny industries. The existing promotional schemes benefit the better off and as such are not serving the cause of the tiny units, the author feels. Development of the tiny sector is essential not only to encourage generation of self-employment but also for skill formation in the rural areas.

THE SMALL SCALE INDUSTRY constitutes a vital component in Indian economy. The Government of India has emphasised the importance of small scale industry for achieving socio-economic objectives like generating more employment, removal of regional disparities and reduction in economic backwardness in rural areas.

The process of development of small scale industries requires the development of infrastructure, creation of facilities and provision of incentives. The incentives for the growth of small industries are provided by the central and state governments and by their agencies in the form of concession, assistance, facilities and subsidy. Institutions like Small Industries Development Organisation, National Small Industries Corporation, Small Industries Service Institute, State Industries Development Corporations, State Financial Corporations. District Industries Centre and banks have designed various schemes to promote and develop small scale industry. Besides, 873 products have been reserved exclusively to be manufactured by small scale industry and 409 products have been reserved for purchase by the government only from the small scale sector.

The incentives are offered to the entrepreneurs from the time of conceiving the project idea to the completion and successful running of the industrial units. For promotion of a small unit assistance such as identification of project idea, preparation of project report, selection of suitable site for factory premise, provision of technical training, selection of machinery and supplier and getting clearance from local body and various departments are provided by various institutions.

For setting up of a unit, provision of industrial estates, supply of machinery on hire purchase basis, loans on liberal terms for procuring machinery, land and building and investment subsidy are offered to prospective entrepreneurs. Working capital assistance, power tariff subsidy, interest free sales tax loan, concessional raw material, interest subsidy, transport subsidy, export incentives, income tax concession and marketing assistance are some other incentives extended to run the units successfully. New incentive schemes are being introduced now and then by the government to motivate prospective entrepreneurs to start industries and encourage the existing units run efficiently.

Tiny sector

The definition of a small scale industry was spelt out by Small Scale Industries Board in January 1955 as, 'one employing less than 50 persons if using power and less than 100 persons without the use of power and with capital assets not exceeding Rs. 5 lakhs. This definition was modified subsequently in the years 1960, 1966 and 1974. The investment limit in plant and machinery for a small scale industry was raised to Rs. 10 lakhs and that of ancillary to Rs. 15 lakhs in 1974.

The main thrust of the Janata Government's industrial policy announced in 1977 was on the effective promotion of cottage and small industries widely dispersed in rural areas and small towns. For this purpose the industrial policy created a new sector called tiny sector within the small scale sector. Those small scale units with investment in machinery and equipment upto Rs. 1 lakh and situated in towns with a population of less than 50,000 according to 1971 census, are said to belong to tiny sector. The investment limit for tiny industries has been raised to Rs. 2 lakhs in 1980.

Importance of tiny sector

The tiny industries are labour intensive. With less capital, they give employment to more people. The tiny industries constituted 95.2% of the total small scale industries registered with SIDO in 1983. These industries with 42.2% of total investment provided employment to 73.6% of labour force in small scale sector. But the industries with investment above Rs. 2 lakhs with

57.8% of total investment employed only 26.4% of labour force in this sector. Besides, tiny industries utilise local resources and give employment to local people which prevent migration to urban areas. These industries provide revenue for self employment also Considering the importance of tiny industries, the industrial Policy Resolution 1977, has stated that special attention will be paid to units in tiny sector and schemes will be drawn for assistance specially to tiny units in the small scale sector as well as cottage and household industries. At present the incentive schemes available are common to tiny Industries and small scale industries. Except schemes like mini loan, composite loan and margin money, there is no separate and special scheme exclusively for tiny sector industries.

The bigger units with more resources at their command and influence are able to utilise all concessions and facilities offered to small scale sector. The tiny industries set up by technicians, self employed persons and women turn sick because of their inability to avail themselves of the incentives. Large number of tiny units still go for private sources of finance and fall sick due to financial stringency, inadequate availability of scarce raw materials and lack of organisational support.

Utilisation of incentives

In order to study the extent of utilisation of incentives by the entrepreneurs in tiny sector a survey was conducted in Madurai district, an industrially backward area in Tamil Nadu. Sixty six sample units were selected for the study from among the units registered with Madurai District Centre by random method. An interview schedule was administered on the entrepreneurs and all the sixty six entrepreneurs responded to the interview schedule.

Incentive utilisation is an abstract concept Hence an utilisation scale has been constructed to compute the extent of utilisation of incentives by the sample units. The scale has been constructed on the basis of scores awarded to ten incentives identified for the study. The ten incentives selected for the study and the scores allotted to them are presented in Table 1.

Table 1

Utilisation Scale and Scores Allotted to Each Component

S No.	Incentives	Scores
1	Promotion of small scale units	10
2	Location of small scale units in industrial estate	10
3	Loans to small scale units for buying land and building	10
4.	Loans to small scale units for procuring plant and machinery	10
5	Working capital assistance	10
6.	Investment subsidy	10
7	Power Tariff subsidy	10
8	*Interest Free Sales Tax Loan	10
9	Supply of concessional raw material	10
10.	Marketing assistance	10
		100

Based on the above scoring scheme, the average score obtained by the tiny industrial units and the units having more than Rs. 2 lakhs investment have been computed to find out the extent of utilisation of incentives. The pattern of investment in sample units is presented in Table 2.

Table 2

Pattern of Investment in Sample Small Scale Units

S. No.	Amount of Investment (Rs. in Lakhs)	Number of units	Percentage
1	Upto 2	38	57.58
2.	2 – 5	7	10.60
3	5 – 10	15	22.73
4	10 – 15	3	4.55
5	15 – 20	2	3.03
6.	20 – 25	1	1.51
		66	100

It could be seen from table 2 that 38 (57.58%) units have investment upto Rs. 2 lakhs and 28 (42.42%) units have investment above Rs. 2 lakhs. The average scores obtained by the two groups of sample units are presented in Table 3.

Table 3

Amount of Investment in Sample Units and Utilisation of Incentives

S No	Amount of Investment (Rs.)	Number of Units	Average Utilisation Scores
1	2 lakhs and below	38	19.03
2	Above 2 lakhs	28	30.29
		66	

Table 3 indicates that the average score of tiny industries is low (19.03) whereas the scores secured by the units having investment above Rs. 2 lakhs is high (30.29). This shows that industries with high investment have made use of more incentives.

In order to test whether the difference in averages between the two groups is significant 'Z' test has been applied. Table 4 shows the application of Z test.

Table 4

Amount of Investment in Sample Units and Utilisation of Incentives: Z test

Groups Compared	Mean difference	Standard Error of the difference	Z Value	Table 't'	Level of Significance
Units with Investment of Rs. 2 lakhs and below and Units with investment above Rs. 2 lakhs	11.26	2.68	4.21	1.96	5%

(Contd. on page 10)

Informal Sector-A tool for poverty eradication

P.D. Vashist

In a developing country like India, where the pressure of population is ever on the increase, the development of the informal sector can go a long way in employment generation and consequent eradication of poverty. There are, however, many problems. Analysing these, the author also puts forth a few suggestions for promoting this sector.

THE INFORMAL SECTOR IN any country is actually much more important than the formal line staff and organized sector. It acquires much more importance in a developing country like India, a sizable chunk of population of which lives below the poverty line which is differently definable in different countries. The fact still remains that with proper focus, practical vision and application of appropriate technology, informal sector can be a very potent tool for poverty eradication and self-employment. With the pressure of population ever on the increase, the Government, semi-Government and other private jobs cannot contain the entire rush of unemployment. Nor can the agriculture sector absorb everybody. Besides, with the advent of education, enlightenment and other demonstration effects; agricultural sector no longer offers any charm as the 'lady bountiful' As a consequence, non-farm activities and informal sector will have to be taken recourse to in the pursuit of self-employment activities by the planners, administrators, entrepreneurs and politicians of the developing countries.

In India, Asia, Africa and other third world countries the percentage of rural poverty is much more though it is always not obvious. The rural poor, being scattered and unorganized, are no pressure groups as can have voice either for themselves or through the media. It enjoins upon the government machinery to approach them with functionat schemes backed up by training, finances, marketi and other infrastructural facilities so as to make t informal sector a success as a vehicle for gainf employment and poverty eradication

Definition of informal sect

From its very essence informal sector is und standably different both conceptually a operationally though many attempts have be made to define it. It is not so conspicuous a sector, ye plays the most important part in everybody's li Who can ignore the role of weaving, tailori blacksmithy, handicrafts, cobblery, spinning, ro making, masonary, pottery and the like activiti which have become part and parcel of everybod life

According to the International Labour Organisati (ILO), informal sector is understood as that part the economic activity which is characterised certain features like ease of entry, reliance indigenous resources family ownership, small sca operation, labour intensive, adopted technolo skills acquired outside the formal school syste unregulated and competitive markets. The distrib tion of their location in rural and urban are becomes irrelevant because even though by the very nature, they are rural-oriented and traditional significant part of the informal sector is also urb specific. While the exact contribution of this sector the national economy is anybody's guess, the villa and small industries have acquired a distinct place our national development plans.

The proble

Informal Sector exists in primary, secondary well as tertiary sectors of the economy.

The problems of the informal sector are too we known. The means of production are primitive, t income generation is mostly in the form of wag leaving nothing to plough back, the ownership is the form of a family unit, or loose partnersh containing an element of disguised employme scale of oprations are uneconomic, technology

primitive and inefficient, the operations are labour-intensive, with rather low productivity per worker, market is not assured and very often the units have to play into the hands of middle men who exploit them as they like. The result is that the problems faced by the informal sector are so complex that they are not easily amenable to ready-made sophisticated solutions prepared by the economists and planners. Apart from the economic factors, the social and political features of the society too become very relevant One type of solution or approach may not be helpful in different parts of the country or even the States

In a dual economy like ours, the contrast between the modern organised sector on the hand and the informal unorganised sector on the other is glaring In the modern sector, capital intensive means of production are used which maximise the output per unit of capital employed of which the benefits of growth seldom percolate to the informal sector On the contrary, in the informal sector the means of production are labour-intensive which may appear to keep a large number of workers employed somehow or the other, but the growth is slower and the vicious cycle of poverty is hard to break

Historically, informal sector is as old as the advent of mankind Making of rough clothings, stone weapons, crude agricultural implements by the prehistoric man were all creation of the disorganized sector With the advancement of age and development of science and technology, refinement and finesse kept on entering the tiny sector The impact of innovations and modernization has been negligible on the unorganized sector. Instead of being tempered with improvement and improvisation, until recently the informal sector has been facing heavy onslaught including attempts at its elimination. Science and technology, nationalization and non-availability of raw material, marketing and financial inadequacy have all contributed to the gradual weakening of the unorganized sector.

It is now generally recognised that technological innovation has a major bearing on such national development objectives as employment creation, income distribution and the satisfaction of basic human needs. What is needed is a "Technological Mix" which leads to optimum use of available resources.

In practice, therefore, and with appropriate allowance for variations in national priorities and in the role to be played by small-scale enterprise in achieving these priorities, the planner can be expected to prefer technological change which (a) increases productivity; (b) complements labour rather than replaces it; (c) produces low-income goods and services for the poor masses; (d) utilises local raw materials which can be produced, maintained, and repaired by the domestic capital goods industry; (c) encourages the channeling of hoarded or latent savings into new productive investment; and (f) is compatible with existing modes and social patterns.

Some suggestions

Policy measures are to be taken to improve labour efficiency, through introduction of simple capital inputs, Unit level assistance at various stages of production appear to be inevitable, apart from planning new industries. Institutional training programmes should be made available in crafts like metal-wares, hand-printed textiles, hand-knitted carpets, cane and bamboo products and electronics gadgetry etc. Perhaps Training of Youth for Self-Employment Schemes in India could be better utilised for this purpose. New designs, new tools and techniques are to be introduced in a massive way. The proposed technology development centres at the district level should cover these aspects. Common service centres, Technology centres and the TRYSEM schemes are to be properly integrated with the active assistance of district industries centres and District Rural Development Agencies. State level corporations should also be brought round to serve the real interest of the artisans. One important policy decision would be on minimising the costs and sale price of the items prepared by the informal sector for the domestic market. This sector needs stronger support from the government in terms of product promotion programmes, entrepreneurial development, subsidies and incentives.

There is also a great felt need to train the bankers in identifying, assessing and evaluating projects in the decentralised sector. On the Bankers side, it is being felt that those involved in programmes send application for credit at one point of time, particularly at the end of the financial year. In India, assistance to the informal sector at present is given by industries departments, Khadi and Village Industries Boards, District Rural Development Agencies, District Industries Centres, Specialised Corporations, Corporations for Scheduled Castes, Scheduled Tribes and weaker sections and women etc. The results in implementing these schemes are seriously affected by the lack of coordination. These problems may, to some extent, be solved if the extension staff under the various programmes are put under the direct control of the Block Development Officers at the Block level and the District Rural Agencies at the district level. Subsidy and loan component should be delinked and the maximum subsidy say Rs. 10,000/- or more may be provided. Work done by various councils for the advancement of technologies have not percolated down to the rural areas. Industrial extension, in this sphere, is almost negligible. It is high time that we introduce quality control mechanisms and quality consciousness for the producers as well as consumers. For the promotion of exports, there are still enough opportunities to explore the international market mechanism for the much sought after Indian goods provided conscious efforts are made to keep up the quality. Proper packaging and preservation is another neglected area which needs immediate attention

Even the present District Industries Centres (DICs) set up in Districts is not able to cater to the training/technology/market and other needs of people in the rural areas. A Mini-DIC at the block level, with staff suitable to the requirements of the regional needs, may be thought of. Likewise, an exclusive wing to cater to the needs of rural industries, should be set up in the various State level corporations and a particular percentage of their funds should clearly be earmarked for rural informal sector. The Branch Managers of the Banks may be empowered to sanction credit upto Rs. 50,000/- under composite loan, without referring to the regional and higher offices.

Marketing cooperatives at the block level may be affiliated with the district level cooperatives and in turn with state and national level organisations.

Financial patterns prescribed by various development agencies may be revised and up-dated from time to time keeping pace with price escalation in wages, raw materials etc., and the economic viability of the schemes.

Rural marketing outlets for rural artisans may be attached to panchayats and other local decentralized bodies with the financial assistance from the Governments and Banks. Concept and theme of "one window service" should be given a practical shape instead of merely a "lip service". Willing and useful non-officials including private voluntary organisations should also be associated with the promotion of the informal sector. A list of practical and on-going ventures should also be available under the one umberalla service so that an entrepreneur can see for himself various on-going projects of other entrepreneurs for his benefit. This will reduce the incidence of failure in various programmes.

Some of the items produced in the informal sector have good market appeal. But they are not popular. Hence extensive measures are to be taken by the national, state, and district level organisations in advertising and promoting the brand image of these products. Such products should also be kept for show in various state and national level emporiums and exhibitions for window shopping. To some extent only local skills or local resources are exploited in the informal sector. The transfer of skills inter-district, inter-state with international linkages would perhaps go a long way in promoting these units. ☐

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(Contd. from page 9)

(ix) Developing forward and backward linkages with research organisation(s) with the tea estates/farms

(x) Development of wel knit mechanism facilitate the transfer of new technology the godowns.

(xi) Introduction of a few brand names popularising Indian tea as a guarantee purity and high quality.

(xii) In order to avoid transport bottlenec warehousing facilities should be providec the foreign offices of the Tea Board ensuring timely supply of tea

(xiii) Strengthening of market intelligence netw for exploring new markets for Indian tea

(xiv) Strengthening of R & D to ensure c effectiveness and improvement in producti and quality.

(xv) Augmentation of export in unit value as w as volume.

(xvi) Intensive use of media for popularis Indian tea abroad.

Dr. S.S. Khanna, Adviser (Agricultur Shri A.C. Garg, Joint Adviser (Agri.), Planni Shri Brij Bhushan, I.E.S, Dy. Adv. (Ag — all from Planning Commission.

(Contd. from page 13)

The test reveals that the difference in average u sation scores between the two groups is significant at level. Hence it is evident that the relation between level of investment and utilisation of incentives significant. The industrial units with more than Rs lakhs investment have utilised more incentives.

Conclusi

The industrial units with high investment are set mostly by persons who already own industries and v own big trading concerns. The experienced persons w adequate resources at their command are able to in ence the officials and avail themselves of the concessic facilities and subsidy. The tiny industrial units are mo set up by fresh graduates, unemployed youths, appr tices in engineering works, persons with technical s and women. A majority of them are first generat entrepreneurs. Though they are aware of the incent schemes available they are unable to make use of th

For the promotion and healthy growth of t industries separate incentive schemes should be desig and implemented by the various agencies engaged in development of small scale industries. Alternatively separate institution for the promotion of tiny indust with its branches spread to all taluk headquarters may established. The institution may be charged with responsibility of formulating financial and non-finan assistance schemes to tiny industry.

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Coordination : The missing link in rural uplift programme

Dr. D.K. Ghosh

In the study the author finds lack of proper coordination between major poverty alleviation programmes. There is an attempt to make a dent to the problem of rural poverty in isolation, he feels. This calls for a fresh look at the administrative level.

THE FOLLOWING STUDY IS to see whether there is any linkage between IRDP and land reform programmes. The study was conducted in Nadia district of West Bengal. This study took 240 beneficiaries equally from IRDP and land reforms (ceiling surplus land distribution programmes) spread over six blocks of the district. The Blocks were chosen from all the four subdivisions of the district and on the basis of performances in respect of the programmes. Efforts were mainly made to elicit the linkage between the programmes.

The linkage primarily means the package of benefits of both the programmes conferred upon a single person. Firstly, in table 1 collected responses of 120 beneficiaries of IRDP programme are presented to show the tie-up of benefits of IRDP with those of land reforms. Of the total samples, only 10% cases showed linking of IRDP with land reforms. This means that beneficiaries of IRDP programmes were provided land assets available from ceiling surplus land distribution programme. In the rest 90% cases this package of benefits is not adhered to. In two blocks under the study e.g. Haringhata and Krishnagar-II, no linkages were seen. Only benefits of one programme has been given. The net result of such a weak linkage is that beneficiaries are still under the yoke of poverty.

Secondly, 120 beneficiaries of ceiling surplus land distribution programme were picked up randomly from the chosen blocks to study the linkage. It can be seen from the table 2 that out of the total samples of 120 linkage could be established in case of 11.67% cases. i.e. only 11.67% of sample received the assistance under both the programmes.

Table 1

Linkage between IRDP and land Reforms Programmes

Block Name	No of sample beneficiaries of IRDP	No of persons out of the sample provided with land	Percentage
Krishnagar-I	20	2	10
Krishnagar-II	20	X	X
Tehatta-I	20	3	15
Karimpur	20	4	20
Ranaghat-II	20	3	15
Haringhata	20	X	X
Total	120	12	10

Table 2

Block Name	No of sample beneficiaries of ceiling surplus land distribution programme	No of persons out of the sample provided with assistance of IRDP	Percentage
Krishnagar-I	20	1	5
Krishnagar-II	20	1	5
Tehatta-I	20	4	20
Karimpur	20	3	15
Ranaghat-II	20	3	15
Haringhata	20	2	10
Total	120	14	11.67

Thus, from the study it can be deduced that there exists very weak linkages in between the two major poverty alleviation programmes. Both of them are being implemented in isolation paying no heed to confer benefits on a single family. The main reason for going alone is that the implementing authorities of the two programmes at district and block level are different — for IRDP it is District Rural Development Agencies of Rural Development department and for land reforms it is Revenue department. But at the national level the nodal agency of both the programmes is the Department of Rural Development in the Ministry of Agriculture. This calls for a fresh look at their Administration.

(Contd. on page 22)

Dairy as an instrument of development

Sekhar Dutt

The author suggests cross breeding as a policy to overcome low productivity of our milch cattle. This is imperative not only to raise milk output but it also opens up new areas for wholetime employment. The author points out some shortcomings of the Operation Flood II and offers some suggestions. He favours dovetailing of O.F.-II and anti-poverty programmes for effective utilisation of animal wealth and manpower.

ONE OF THE MOST EFFECTIVE instruments for supplementing farmers' income and generating employment in the rural sector is Dairying. Interestingly, landless labourer account for 21% of all rural households. They, however, own 12% of the milch cattle and produce 16% of all rurally produced milk.

According to the National Commission on Agriculture,

> Next to the crops, animal husbandry programmes have got the largest employment potential. The most important feature of these programmes is that they provide subsidiary occupation, offer gainful employment at the location itself and make better utilisation of female and child labour. A supplementary programme of diversified agriculture through Animal Husbandry activities is suitable for raising incomes of rural households. Livestock development programmes are labour intensive, have favourable cost-benefit ratios and in some cases a small gestation period. Most of these programmes are particularly suitable for weaker sections of the rural community and have redistributive effect on rural income in favour of them.
>
> (National Commission on Agriculture, 1976: Chap. 58)

However, as shown in table No. 1 the provision -expenditure under Animal Husbandry and Dairying Sector hovers around 5 to 6% in the 6th plan and tl 7th Five Year Plan.

Table-1

(Rupees in Cror

Head	Sixth Plan outlay	Sixth Plan expenditure	Seventh Pl. Outl
Animal Husbandry and Dairying	851 4 (6 7%)	806 5 (5 3%)	107((4 7
Total Agriculture and allied programmes	12538 8 (100%)	15004 0 (100%)	2279: (100

Source. Plan Coordination Deptt Min of Agriculture)

Clearly the provisions for Animal Husbandry an dairying sector are not adequate for the developme of animal wealth of the country. Consequentl India's per capita milk production is one of the lowe in the world despite having a large cattle populatio (15% of the world) and buffalo population (50% of th world)

Table-2

(1000 Hea

Type of Animal	India 1985	Asia 1985	Europe 1985 (Excl. USSR)	worl 198
1 Cattle	182410	368738	132179	12689:
2 Buffaloes	64500	125413	407	1292(
3 Sheep	41300	311155	132444	11219:
4 Goats	81500	250522	12555	4599(
5 Pigs	8826	375984	179919	7914:

(Source. FAO Production Year Book Vol 39, 1986 pp. 224-228)

It may be seen that India has about 14.4% of World Cattle Population and about 49.5% Asia's Cattl population. Similarly, it has about 50% of Worl Buffalo population and more then 50% of Asia buffalo population. However, as shown in table N(3, the average annual milk yield of the cattle is muc lower than the desirable yield.

Policy shi

The low milk production is brought about by a hig percentage of non-descript cattle which ar inefficient converters of feed. With indigeneou

cattle breeds, the intake of feed results in 56% being used for body maintenance which 44% goes towards milk production. This differs from indigeneous cattle which have been crossbred with exotic breeds whose intake is 35% for body maintenance and 65% for milk production. As the indigeneous production system is inefficient, any enhancement of milk production will have to adopt crossbreeding as a policy According to a recent study, a shift from owning a nondescript to a crossbreed cow can increase a landless labourer's income threefold and one hectare landholder's income by 50 per cent

(Mascarenhas, 1988: 53)

Table-3

Cow Milk, Whole, Fresh

(Yield kg/Annual)

Country/Region	1979-81	1985
1 India	522	658
2 Pakistan	888	886
3 Thailand	2596	2692
4. China	395	2797
5 Japan	4526	5046
6 Israel	6817	8125
7 Asia		
8 Australia	2951	3508
9 Europe	3503	3685
10 N America	5241	5699
11 World	1937	2059

Source FAO Production Yearbook, 1986 253)

The most important argument in favour of a dairy development programme for increasing rural household income through cross breedisation of cattle is that the huge cattle population of India provides a ready and fertile ground for transplantation of germ plasm of high milk yielders The analogy is similar to that of increasing foodgrain output by introduction of high yielding varieties Just like in agriculture development, pre-harvest packages of development through high yielding seed, fertiliser, and short term credit similar packages are required for dairy development also Alongwith the improvement of the germ plasm of the cattle, the important ingredients are better animal health care and nutritions feed and fodder Similarly as in agriculture post harvest packages like market support and storage are also required and establishment of a network of dairy cooperative societies and at suitable places small Instant Milk Chilling Units (IMCU) will have to be planned for which adequate provisions in the Five Year Plans will have to be made.

According to Mascarenhas, this can be achieved by.

(i) Genetic improvement of indigeneous breeds of cattle and buffaloes

(ii) Cross breeding of nondescript cattle with exotic breeds.

(iii) Development of feed and fodder resources.

(iv) Effective animal health services for the prevention of diseases.

(v) Organisation of Milk Producers' Coopratives for the collection of surplus milk.

(vi) Establishment of milk processing plants.

(Mascarenhas, 1988 : 60)

Of the above steps, the last two, i.e. (v) & (vi) can be, however, substituted by:

(v)2 Organisation of Dairy Cooperative Societies at the village level for collection of surplus milk

(vi)a Establishment of IMC Units at suitable places for intermediate chilling of collected milk (morning, evening and next morning's collection).

(vi)b Bulk transportation of chilled milk every 36 hours to the processing plants.

Continuous employment

The question can be asked why should a large expenditure be incurred in the improvement of the germ-plasm & cattle, animal health care, feed and fodder and then organisation of DCS's and making storage and marketing linkages available? The answer to this can be found if alternate method of employing rural agricultural labour-small and marginal farmers and landless workers in their rural setting can be located In fact the case is that all possible methods of employment generation for this sector shall have to be found so that during the period when there shall be no crop these people will be gainfully employed Small village based industries, service sector, horticulture are some sectors which shall provide some employment. Dairy sector is yet another, albeit a major one, which is available and can play a major role of providing continuous occupation and employment. In this sector the advantage is that the animals are available and that too in large number. With better management, improvement of germ plasm, adequate health care and establishment of marketing likages can this huge resource be fully utilised However, if this resource is left unused, than this huge cattle population shall, in order to meet its forage requirement, compete against the crop production and thus be a menace to farming Further, untended unproductive cattle can become a traffic hazard and already the phenomenon can be experienced on Indian roads. Moreover, it is in the interest of the nation that all physical assets be fully utilised and animal wealth and manpower constitute a major asset of the country.

One of the most crucial link in the chain of Dairy Development in the marketing of milk products. Milk being a highly perishable commodity, it cannot be stored in its original state for more than four hours and, therefore, chilling and packing is required for increasing its keeping quality. Further, it is a chemical substance having Fat, Solids Not Fat (SNF),

which are essentially proteins, Minerals, Vitamins, etc. and water as its main ingredient. Therefore, it can be suitably converted into Butter, Ghee and Milk Powder and reconverted into Milk if and when required. Milk is also a nourishing food, an easily digestible protein necessary especially for the growing child. Thus, these things will have to be kept in mind while planning an effective marketing linkage. This has been tried under Operation Flood (OF) Programmes through the establishment of village level Dairy Cooperative Societies (DCS) whose members supply milk and are paid either daily or periodically. A number of DCSs join to form a Milk Union, which is responsbile for procurement, processing and marketing of milk. Such Unions are coordinated by a State level Federation, which also provides technical, financial and marketing support. The Anand pattern has been generally acclaimed to have brought together the cooperative strength of the farmers, technology and the market. There has, however, been some amount of criticism of Operation Flood I and II One of the prominent critics is Shanti George, who has opposed the Anand pattern on distributive and nutritional grounds suggesting that it enhances the incomes of the wealthier farmers and cuasés the milk to be siphoned off from the village which otherwise would have been consumed there (Shanti George, 1985). Other critics like Claude Alvares have criticised the OF Programme on the grounds that it did not cause any substantial increase in the milk production and it has become an avenue for dumping excess milk powder from the European Economic Community and also an outlet for their dairy equipment and machinery. (Claude Alvares, 1985).

The impact of Dairy Development programmes on nutrition and income has been examined by Bowonder and others who studied the impact in some villages in Andhra Pradesh, Karnataka and Maharashtra. The study arrived at the following conclusion:

(i) In the households of villages having dairy development programmes, the food intake is higher compared to that in households of villages without dairy development programmes. The consumption of milk, milk products, other non vegetarian food and vegetables are substantially higher in average calorie and protein is also higher in dairy villages.

(ii) The consumption of milk products, vegetables and non-veg. items was higher amongst the landless and marginal farmers in Dairy villages supporting the contention that Dairy Development helps the poor.

(iii) The major determinants of incomes are (a) irrigated farm size and (b) the number of non descript (ND) buffaloes.

(iv) During the lean months, Dairy Development has helped in reducing the variability in food intake for the landless as well as the marginal farmers. Dairy Development provides continuous source of income in summe when Agricultural Employment is low.

(v) If Dairy Development does not provide all th necessary linkages (for example, fodde develoment) the full potential of the pr gramme may not be easily realised.

(vi) In the villages without Dairy Developmen providing ND buffaloes have helped i increasing income levels, even if othe support not provided.

(B. Bowonder and Others, 1987: E.W.I

Dovetaili

Recognising the role that can be played by Dairy Development, the Government has set up Technology Mission on the subject. The mai objective of the Technology Mission would be t accelerate the pace of increasing rural income an employment through an integrated programme o Dairy Development. Efforts will be made t accelerate the pace of application and adoption o modern technology to improve productivity, t reduce costs of operation and to ensure greate availability of milk and dairy products.

The Technology Mission would aim at the following:

(a) Expanding per capita availability of mil from 158 grams in 1986-87 to 186 gms. in 199 and 196 gms in 2000 A.D.

(b) Production of milk to be increased from 44 lakh MT in 1986-87 to 700 lakh MT by 2000 A.D

(c) Extending cooperation structure to 27 districts or 60% of the country by 2000 A.D

(d) Improving annual yield of milk per anima within the project area as follows:—

(Litre per Annum

Type of Animal	1987	1995	200
Cows	390	640	80
Buffaloes	910	1020	110

In order to achieve the above objectives, emphasis has been laid on the importance of dove-tailing Operation Flood and State Government programmes and animal husbandry and dairying with poverty alleviation programmes like IRDP, Research Programmes, Process Technology, Agriculture University, etc.

In conclusion, it can be said that greater employment and income needs to be generated in the agriculture sector in order to increase the pace of overall development. An integrated Dairy Development programme can, in this regard, play a positive role by providing for an effective utilisation of the animal wealth and manpower. □

Shekhar Dutt, Secretary to Governor of M.P

Some aspects of dairy development

Chandrakesh Rai & Dr. H.B. Dwivedi

INDIA OCCUPIES THIRD PLACE in the the dairy industry, followed by U.S.S.R. and U.S.A. The country's milk production of last two years 1986-87 and 1987-88 was 43.9 and 46.2 million tonnes respectively. Our goal for the year 1990 is 51 M T.

In our country milk production mainly depends upon Buffaloes and cows. India has 50% of the world Buffaloes. The Buffaloes produce about 50-52% of the total milk production.

Cow comes next in the respect of milk production. We have a great number of cows in our country which are 1/6th of the total world population. Cows produce about 45% of total milk produce.

Availability

According to W H O. recommendations per head milk requirement is 210 gms but the availability is still very low. It was 157 gms in 1987.

Productivity of live stocks

It is obvious that our live stock are less productive due to . (i) Chronic shortage of feeds & fodders and (ii) Genetically imroved breeds.

According to live stock census 1982, we have 191 M cows, 69 M. Buffaloes. 48 M Sheep and 96 M Goats, which places India as the leader in the world live stock population.

According to National Commission on Agriculture the average milk production per cow is 157 kg. per Buffaloe is 504 Kg.

For improving live stock productivity an extension infrastructure is being developed in the country. At present. there are 500 Key Village Blocks, 134 Intensive Cattle Breeding Projects 94 Cattle Breeding Farms. 51 Buffaloes Breeding Farms and 184 Exotic Cattle and Cross Bred Forms. There are some 80 military farms and 1000 Gausadan and Gausambardhan farms in the country.

With the emergence of artificial insemination of semen of superior bulls, the improvement of live stock is going at a very fast rate. In this respect a network of 15 Semen Freezing Stations. 52 Semen Banks and about 5500 A.I. Field centres, are utilizing semen for inseminating female animals in 16 States. The apex agency for this programme is 'Central Frozen Semen Production and Training Institute' at Bangalore. There is a Herd Registration Programme which is sponsored by Central Govt. It aids identification for those animals which are of high genetic merit and genetically pure and satisfactory production. This programme is now functioning well at Haryana, Ahemdabad, Ongole, and Ajmer. The Herd Registration is available for 9 cattle and three buffaloes breed. The number of registered animal was 6000 by 1987.

There are about 7 central breeding farms. State governments have also sponsored programme called Bull Production Programme (B.P.P.).

Nutritional requirements

According to Dairy India (1987), "There is chronic shortage of feeds and fodders. Poor nutritive value of such feeds available have lowered the production capacity and fertility potential of country's live stock. If we only feed to our herd we can get 20-25% more production from the same live-stock."

The existing situation can be improved by :

(i) Agro-industrial by products, crop residues which are the major source of energy and protein in live stock nutrition.

New Technology is based on utilization of crop residues, fallen tree leaves.

(ii) Improving straw quality by practice of 4% Urea solution to create 50-60% moisture in straw and tightly packing of such feeding material upto 2 weeks. The Urea molasses blocks are now developed at N.D.D.B., I.C.A.R., N.D.R.I. and a number of agricultural Universities, which are now under demonstration.

(iii) Treating poor quality straw with alkali is a good step in improving its quality and make feed available to herd.

The importance of green fodder in economic live stock production is well recognised. However, it has a very limited area in the country which is about 4% except the States like Punjab and Haryana, where its average is

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Tribal development: Strategies and approaches

Dr. K.V. Mohan Kumar

Tribals in India even today are a neglected lot, vastly discriminated against in terms of income distribution and social status. The development programmes so far initiated have had only partial success. Keeping these in view, the author, in this article attempts to prescribe strategies, approaches and methodologies for integrated tribal area development.

ONE OF THE OBJECTIVES OF the welfare state is to bring about a balanced development of all segments of society facilitating the establishment of all functions for the benefit of depressed classes. Even to-day, a dominant feature of the Indian economy is the existence of glaring inequalities not only in terms of income distribution but also in respect of social stratification. One of the most neglected sections of the population were the tribals whose life styles and living standards vastly vary from the rest of the society Most of the tribal population all over the country live in utter poverty and are constantly exploited by certain categories of non-tribal population.

The Government of India took a serious note of this and started developmental programmes since 1956. Special multipurpose tribal blocks were opened in different states of the country to speed up the process of development in the areas of large tribal concentrations. On the basis of Elwin recommendations, tribal development programmes were further revised during the Third Five Year Plan The main lines of activities under these programmes are (1) Agriculture and related matters (2) Irrigation. (3) Communications, (4) Education, (5) Health, (6) Supplementary employment, (7) Housing and (8) Social Welfare. In the Fourth and Fifth Five Year Plans, in many of the tribal districts, area development programmes were launched. However limited success has been achieved, leaving many areas underdeveloped. As such the effective tribal development programmes needs specific objectives, strategies and approaches for different programmes like afforestation, horticulture, sericulture, agricultural and allied activities and infrastructural facilities. Further, these programmes should be based on the social, economic, and cultural needs of the tribals.

The integrated tribal development programmes should be prepared with two chief objectives namely (1) A techno-economic evaluation of existing structure of the region and assessment of the potential for development (2) Specific proposals for development of different sectors of activity within the region, so as to bring an improvement in the existing levels of socio-economic base of the region and to create conditions for sustained growth. To be more specific, integrated tribal development programmes should include :

1. Assessment of potentials for development of afforestation, horticulture and sericulture activities
2. assessement of potential in the area for the development of agriculture and allied sectors ;
3. assessment of the irrigation potential available in the region viewed in the context of development of agriculture and allied sectors.
4. assessment of the requirement of physical infrastructure such as, storage, transportation, marketing and banking ;
5. assessment of industrial development potential in the region based on resource availability ;
6. assessment of social facilities such as education and health ; and
7. identification of suitable compact spatial planning units for development of different economic activities and infrastructural facilities in the region.

Vast data base required

The tribal development programmes require vast data base both from primary and secondary sources Primary data has to be collected through questionnaires such as (1) Village/town questionaire, (2) Household activity and resource use questionnaire and (3) Income consumption and savings questionnaire.

Secondary data has to be collected from various official sources at the district, tehsil or mandal and block headquarters on demographic particulars,

1. Extent of the area under different crops and land uses,
2. Extent of irrigated area under different sources,
3. Spatial distribution of extension services;
4. Type of industries if any and their location,
5. Type of forests and forest produce,

6. Livestock and animal husbandry,
7. Horticulture,
8. Information relating to type and location of facilities such as education, health, transport and communications, electricity, credit and marketing structure etc.

Strategies

One of the important aspects is identification of suitable compact spatial planning unit for implementation of developmental programmes. In recent planning studies Christraller central place frame work is used as a technique for identification of basic planning units. Each planning unit consists of centre and it provides socio-economic facilities for the entire planning unit. Further, these units have not only a common socio-economic condition but also have common physical conditions such as common cropping pattern and topographical characteristics.

Social forestry or afforestation programme is an important programme of tribal development plans. At present all the forests are rapidly loosing their forest cover In this context, the major aspects to be considered are:

1. identification of defforestation areas ;
2. protecting programmes for growing forest areas ;
3. programmes for maintenance of existing forest areas ; and
4. development of new forest areas under afforestation or social forestry programme.

These programmes must suggest climatically suitable, drought resistant and fast growing plants for new forest areas. Further, the species must have commercial and industrial importance.

In recent years, sericulture programmes have gained importance in the integrated tribal development programmes. Sericulture activity provides employment opportunities for many tribal people. These programmes have two phases, the first phase of the programme is to assess the present status of sericulture and the second phase suggests new locations for the development of sericulture activity

Preparation of agricultural development programmes for tribal areas is very difficult because their agricultural practices are diversified in nature. Hence, focus should be on the programmes such as:

1 assessment of existing agricultural practices, cropping pattern and productivity :
2. assessment of potential for the development of irrigation and use of high yielding varieties ;
3 assessment of potential to increase the agricultural production ; and
4. estimation of the requirement of agricultural inputs such as seeds. fertilizers, pesticides and labour on the basis of accepted norms under irrigation and rainfed conditions.

Animal husbandry is one of the major occupations in the tribal areas. Further, the tribal areas have vast potential for the development of animal husbandry programmes. These programmes should include :

1. assessment of available fodder production ;
2. estimation of sustaining animal strength on the basis of available and expected growth of fodder production ; and
3. recommendations for the establishment of veterinary and the stock development centres and indentification of its beneficiaries.

The tribal areas have good potential for the development of forest based industries. Hence, the industrial development programmes shall be prepared on the basis of available local raw materials, demand for different products and available infrastructural facilities. Further, these programmes should suggest new industrial units and their locations.

Development of socio-economic, agro-economic and infrastructural facilities is another important aspect in the integrated tribal development plans. These programmes shall analyse the existing levels of development of socio-economic facilities and proposals should be made for the development of new facilities on the basis of revised minimum need programmes. The requirement of markets, storage and processing facilities are to be estimated on the basis of available agricultural and forest products. □

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(Contd. from page 17)

In talks with the different development functionaries at block level viz. prodhans of gram panchayats (at village level) Sabhapatis of panchayat samitis (at block level), Block Development officers and their work forces i.e. Gram Sevaks, during field visits it is observed that most of panchayat and people in particular do not want to channelise benefits of both the programmes to a single family. Instead they believe that if benefits of different programmes be singled out coverage of programmes' may be extended to more people which means little benefits of programmes to more numbers. Obviously resultant effect of programmes will be less prominent. Change in attitudes and beliefs of functionaries, in particular panchayat functionaries, (who happen to be the sponserers of beneficiaries for development programmes in rural areas as in West Bengal) need to be changed.

To conclude, it is reiterated that there must be close linkages between these two ongoing programmes treating both of them as development programmes and means of combating poverty in rural areas. Linkages may be made doing permutations and combinations of different schemes of the two programmes. For example, assignees of ceiling surplus land may be provided with a shallow tubewell at the cost subsidized fully under IRD Programme for extending irrigation facilities to the plot. Many such combinations need to be explored for effective and productive linkages between the two programmes with a view to meaningful amelioration of poverty menaces in rural areas. □

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Micro-level planning in Tribal areas

Suman Sethia & Pritam Joshi

In this article the authors discuss objectives and methodologies of micro-level planning for eradication of poverty in Tribal areas with special reference to Rajasthan. They lay emphasis on an integrated approach and a sub-plan approach in order to harmonise the area plans and the national development plan.

THE TRIBAL POPULATION of India comes to about 41 million which constitute about 7.5 per cent of the total population. Most of them live in remote hilly and forest areas and are at a lower level of technological development because of: 1. relative backwardness 2. illiteracy 3. Economically backward 4. Poverty stricken 5. Semifed, and 6. complex problems.

The Tribal area of Rajasthan consists of 23 panchayat samities falling within 19 tehsils of Banswara, Dungarpur, Udaipur, Chittorgarh and Sirohi districts of the State. The whole region has spread over 4409 villages of five continuous districts and as per 1981 census it inhabits 18.38 lakh scheduled Tribe population. This constitutes 66.36% of the regions total population.

The special programmes for backward regions have to be dovetailed with the over all development plan in order to make them cost effective. Thus mechanisms of area planning have been adopted to provide an integrated approach to the problem of regional inequalities, and the sub-plan approach has been promoted so that the area plans are fully integrated with the national development plan.

The National Committee on Development of Backward areas (NCDBA) has recommended that the concept of a sub-plan has been developed in the integrated tribal development programme. There should be a sub-plan for the development of backward areas both at the State and Central levels. In the pla[n] of every development department there ar[e] programmes which are divisible. In the sub-pla[n] apporach, weighted allocation is proposed to b[e] given to the backward area from the divisible part o[f] the plan of the development department.

Micro-level plannin[g]

The present Indian Planning system, has achieve[d] economic growth but it has not succeeded i[n] achieving social justice. Inspite of fou[r] decades of planned economic development, th[e] basic problems of poverty, backwardness[,] unemployment, inequality and regional socio economic imbalances still exist.

Surveying 40 years planning noted economists sa[y] that we have now to ponder whether a smaller pla[n] with clearly formulated objectives and feasibl[e] targets is preferable to a plan whose resources kee[p] doubling in each plan period, while the realisatio[n] keeps declining. The gap between the targets an[d] their actualisation has not bridged.

Micro-level Planning for eradication of povert[y] in Tribal area is imperative since poverty problems, priorities, requirements and solution[s] vary according to local conditions. The persistence o[f] economic backwardness in the tribal sub-plan area o[f] the State of Rajasthan has remained a subject of grea[t] concern. In the present paper an attempt has bee[n] made to persue for micro-level planning with som[e] key concepts about eradication of poverty of triba[l] poor.

Objectives

The major objectives of micro-level planning fo[r] tribal area development and eradication of poverty i[n] these areas are:

(1) To solve the tremendous problem of povert[y] in tribal area.

(2) To reduce disparities in the level of poverty.

(3) To ensure geographical spread of anti poverty programmes.

(4) To improve the living status of disadvantaged groups.
(5) To bring poverty eradication planning and administration as close to the beneficiaries as possible.
(6) To reflect the eradication needs, problems and priorities of the people of a particular area.
(7) To build up pressure to re-orient national eradication policies at the micro-level in their favour.
(8) To promote beneficiary participation in poverty eradication planning and to convince the beneficiaries that the plan drawn up is indeed their own and for their benefit.
(9) To encourage planning for IRDP in the tribal area.
(10) To have a definite and regular monitoring of various development programmes.
(11) Allocation of funds to various departments is not sufficient for tribal area development.

Methodology

Micro-level poverty eradication planning involves the following methodology:

- Define national goals of eradication of poverty, planning on the basis of the existing nature of the development situation, needs and problems in their historical perspective,
- Identify and determine short and long term objectives,
- Determine appropriate strategies and evolve coherent poverty eradication policy measures for achieving the objectives.
- Formulate specific, consistent anti-poverty programmes and projects in their physical and financial dimensions and specification of their temporal and special dimensions.
- Identify viable units for eradication of poverty in tribal area.
- Survey of all the households in the unit in order to have an indepth knowledge of the various constituents of the unit and knowledge of the resource position and requirements,
- A diagnostic analysis of the nature of the existing situation, needs and problems of the locality,
- Identify the poor of the disadvantaged groups and ascertain their specific poverty eradication needs, problems and priorities,
- Identify the gaps and pitfalls in the development schemes in a particular locality,
- Establish their spatial and temporal linkages within an integrated framework,

For ongoing anti-poverty programmes in Rajasthan the District is the lowest unit of planning. at present. However there was a general opinion that the block should be the lowest unit of planning, so that multilevel planning may take a practical shape and its objective is achieved in a sense. This could also lead to closer involvement of local people in the formulation and removing interdistrict imbalances. But in Rajasthan major part of Tribal area is compact and microlevel planning for such types of programmes is also to be made through tribal sub-plan area approach which is the tool of micro-level planning in Rajasthan. For other development programmes also planning is to made by restructured planner team as suggested by Economists. The services of colleges and university may also be utilised. □

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about 10% of total cultivated land. The present requirement of nutrient for bovine population is as in table 1.

Table 1

Requirement of nutrient for bovine population (M.T.)

S. No.	Particulars	Requirements	Present availability	Deficit
1	Energy (TDN)	342	216	37%
2.	Protein (DCP)	24	16	34%
3.	Green Fodder	343 56	227 5	34%
4.	Dry Fodders	347 00	207.0	40%
5.	Concentrates	19.60	11.1	44%
	TOTAL	1076 16	677.6	Av. 37%

From the above table it is clear that there is a shortage of more than 34% in all nutrient availability. So there is need to cover the shortage of these nutrient, deficit soon.

Another recent system under demonstration is the fodder production unit (F.P.U.), which produces fresh green concentrate fodder in soilless trays in hermetically sealed and environmentally controlled chamber, harvested on eight day continuous interval round the year and no boundation of climatic condition. □

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What hinders development of Lac ?

Dr. T. Bhowmic & S.R. Pandeya

In this article the authors go deep into the causes of rise and fall of the age-old tribal profession of lac-collection and cultivation. They also discuss different aspects of lac production and suggest various steps for faster development of lac in the country as well as redressal of the lac workers' distress.

ANY WRITING ON LAC starts with the phrase that it is a God's gift to the people of India, and the tribal people cultivate it on trees known as host plants and it is collected by so and so and the process is described so on and so forth. The returns received by the cultivators are lamented upon. But uptil now no positive action has been taken to remove the time old distress. But Lac is of much concern to the Government of India. For development of production of lac, there is a Lac Development Directorate under the Ministry of Forestry, Govt. of India for increasing production of lac and improving the quality of produced lac. Annual budget of this Directorate is Rs. 25 lakhs. Another one is Indian Lac Research Institute at Ranchi working since 1925. At present their budget is about Rs. 100 lakhs. In this institute three wings are working on different aspects of lac. Entomological Division works to find out methods of producing lac of better quality and quantity. Second is the Chemistry Division which works on the chemical aspects of lac with ulterior objective of increasing consumption of the commodity. Third is the Extension Division to propagate the research results to prospective consumers of lac. This Institute is directly under the control of Council of Indian Agricultural Research under the Ministry of Agriculture. Lac is very much linked up with the economic condition of the Tribals. To assure maximum benifit to the tribals through lac, an organisation has been set up by the Govt. of India with the name 'TRIFED' in the Ministry of Welfare. Fourth one is Shellac Export Promotion Council under the Ministry of Commerce, the objective is very clear from the name. Shellac is the improved form of lac.

Lac is practically produced in all the States of India. Of these maximum production comes from Bihar. In the next category are W. Bengal, U.P., M.P., Orissa Maharastra, Gujarat, and Assam. Beside these, othe states produce lac in small quantities that ar consumed within the state, or in the neighbourin states.

India is the major producer of lac in the world. Ne to it is Thailand. Before 1957 total produce Thailand used to be imported into India afte preliminary processing. After final processing it use to be exported to the world market. The the Government of India banned import of Thai lac. S these traders started exporting to the world marke Thereby a competitor to Indian lac trade was createc

The recorded maximum production of lac wa 65,397 M.T. Shellac in 1947. It was practically the onl resin in demand in many industries like gramophon record, varnish, electrical insolution, adhesives pyrotechnique and also in defence production.

Dr. Bakeland developed a synthetic resin known a Bakelite which had some properties similar to thos of shellac. The consumers of shellac in the other side of the world started to replace shellac by syntheti resin. With the change of technology of soun recording the use of gramophone was discarded. S shellac had a set back. Nevertheless, with th increase of consumption of electricity the demand fo shellac as insulator went high, and shellac met th demand. As it was apprehended, many worker started working on development of synthetic resins Galaxy of synthetic resins with different composition and different properties were developed, and the became competitors to shellac in all the fields. India shellac used to travel half the world to reach th consumers, whereas synthetics were available a their door step. So the consumers gradually switche on to synthetics. In competition with synthetic shellac had another deficiency. For synthetics a bi battalion of sales representatives moved from door t door to impress upon the consumers the advantage of using synthetic resins. But for shellac there wa none to convass. There are units of different sizes t produce shellac. But there is no organisation to sell it In good old days there were some traders of shella who were known as 'Brokers'. They used to contac the overseas purchasers of shellac, and these broker used to collect shellac from different manufacturers With the decline of the shellac trade they hav disappeared. At present the big manufacturer contact the prospective buyers abroad and negotiat for sale. Small manufacturers dispose off thei

produce to the big ones at the rate dictated by the big ones, in most of the cases at a distress price. Gradually small manufacturers are disappearing At present India's total production of lac, commercially known as sticklac is of the order of 20,000 M.T. After processing, about 8,000 M.T. shellac is available. Domestic consumption is of the tune of 3,000 M.T and balance 5,000 M.T. is exported to the world market. Though we all desire that these figures should go up, but we have no positive effort in this direction. With the betterment of the financial conditions, individuals are going for better living which necessitates better furnitures But shellac finished furnitures are not in much demand So consumption is dwindling down, inspite of so many organisations with the objective of doing good to the lac industry of the country There are a few organisations which refine the crude lac to shellac and export them to the other parts of the world, and collect the value by L.C. against the shipment documents. That too is shrinking gradually

Lac is not a commodity which can be consumed by the general public. But its consumption within the country can be augmented if the responsibility is taken up by some organisation meant for it Indian Lac Research Institute is carrying out research on utilisation of shellac in new fields. Their record says that they have developed so many formulations and methods for use of shellac. But these are tied up in files and publications. There is no body to carry them to the consumers. Unfortunately in this country prospective consumers are completely ignorant of such developments.

To keep the lac production and consuming industry of the country active it is essential that they are informed of new developments and are induced to adopt them. Applied research is successful when it is adopted by the industry. In this process there may be several trials and rejections. Persistent efforts are bound to make success. Lac has not lost its importance either on domestic front or in parts of the world. But it is to stand in competition against synthetics. Prices of synthetics are not lower than that of shellac. Still consumers prefer synthetic resins In the overseas market the problem is slightly different. Our contact is with the whole-sale importers, not with the actual consumers. We are not aware of their grievances against shellac, if there are any. There is also the marketing defeciency. They might have found synthetics in some respect better than shellac. We must have the knowledge of these defects, so that we may remove them by working in our laboratories. There is no organisation to collect them and pass them to the concerned departments.

So it is clear that there is a gap in the system and it is due to absence of good marketing organisation This gap should be filled up. A critical examination is required to find out causes of deficiency, as well as method of removing them.

Lac cultivation is done by the tribals in their own way They select the trees near their own homestead, for fear of eventualities. They are expected to increase production within such limitations. Another indirect obstrution is the little amount of monetary return the cultivators receive. Now a days a lot of development work is going on and a large number of daily wages labourers are engaged in it. The rate of payment is so high that the villagers go for such work, leaving lac cultivations. Many trees are left barren. Uptil now no census has been done on lac host plants There are three types of plants on which the lac insects thrive and produce lac. These are Palas (Butea monosparma) Ber (Zyzyphus mauritiana) and Kusum (Schleichhira Oleasa). According to visual estimates, number of Palas trees is much more than other two varieties Next is Ber and lastly Kusum. Production of lac per Palas tree on an average is 2 kg., for Ber it is slightly more i.e. 4 kg. and for Kusum it is 10 kg. Majority of Palas trees is in Bihar, next is Madhya Pradesh In small numbers it is available all over the country. Palas contributing about 60 per cent, Ber 30 per cent and Kusmi 10 per cent respectively of total production. Qualitatively Kusmi lac is best, next is Ber and last is Palas. In trade, lac from Kusum tree is known as Kusmi and other two as Ranginee, as these two are of darker colour than Kusmi lac. As such there is no dearth of lac hosts of any variety. Palas is a wild tree avilable in jungles. Ber is available also in the vicinity of forests and arround the homestead of the villagers, Kusum is also a forest tree but its availability is limited. In Orissa Jungles of Kusum plants are available. In the adjoining districts of Orissa in Bihar Kusum trees are also available. In West Bengal Kusum trees are available in jungle and also in the surrounding places of the houses in villages. With a rise in prices of food material and a fall in the prices of lac, the importance of lac cultivation as main source of income has dwindlled. Now it is considered as a subsidiary source of income. Hence loss of interest in production of lac.

Going by the paltry monetary return we get through export i.e. 40 crores approximately annually, we stand no where as far as our national economy is concerned Lac is not listed as a major item of export. It comes under the head 'others'. Inspite of these facts, lac is still a subject of concern for the Govt. of India. For it is directly connected with the economy of the tribals. It has already been said that lac production by the tribals is a part time job, that too not for the whole year. It provides employment for a small number of days in a year. So it is suggested that lac production should be planned in such a way that a family of four persons is engaged through out the year and earns an average Rs. 1000/- per month. This can be achieved if information, financial assistance and other facilities are provided.

Suggested method is production of lac on a plantation basis on Ber trees. By calculation it has been found that in two acres of land 1200 Ber plants

can be raised which will produce 4800 kg. of lac easily and if Rs. 5/- is fixed as the price of one kg. of lac, total income would be 24000/- that is 2000/- per month, from which other costs of cultivation may be met. The net income to the cultivators would be approximately Rs. 1500/- per month. Cultivators should also be provided sufficient incentives, say Rs. 500/- per month. till the production starts.

In addition to this plantation they may collect the lac which may be available on the other Ber trees at their home-stead.

Government should fix the minimum price of lac at Rs. 5/-, with arrangement to purchase at this price. But it should not be monoply purchase. Other purchasers may be in the market to purchase at that price or at higher one. But care must be taken that price does not go very high. For stable market of lac, the steady price is very essential. It has been observed that fluctuating prices compel the consumer to think of a substitute. Once a substitute is used,the consumer does not think of shellac again.

All factories engaged in processing lac including Government factories,if any, should be compelled to lift lac from the Government stock at a price fixed by the Government depending on the purchase price and not at the pro rata price. Lac requires re-establishment. So in the world market processed material should be made available at competitive price at par with synthetic, or at the minimum price possible.

In the world market of lac Thailand is the only competitor to India. All efforts must be made to come to an understanding for a steady market for lac. If required India may purchase the total produce of Thialand. Generally in India it is said Thailac is inferior to that of India. But it is not the fact. It is true its colour is darker, but it posseses all other properties of Indian Kusmi lac. Further Thailand has no factory to make shellac. They wash the crude lac with seedlac and dispose off. U.S.A. and Japan are their main purchasers. U.S.A. converts it into white lac by bleaching and Japan to shellac by heat process. If required India may purchase the Thailac and process it further. It is understood Vietnam has started production of lac, though it is believed their annual production is negligible. But they have put up a mechanical processing unit. Nevertheless, it is essential to investigate the real position. In Combodia also lac is produced, and they are also contemplating on setting up a factory. All this information is encouraging as it indicates increased importance of lac. In India old system of hand process of making shellac has been practically replaced by machine. Calculated installed capacity to produce shellac by machine is 42600 M.T. by 142 presses, which is equivalent to 85200 M.T. sticklac. Our present production is 20,000 M.T. i.e 25% of the capacity. Besides, for making buttonlac 'Hand made' process is still followed.

In the processing industry there are many by-products which can be converted into valuabl[e] products. Amongst the by-products Kiri is the mai[n] which accounts for five per cent of the shella[c] produced. This Material contains 50 per cent shella[c] which can be conveniently extracted, by solven[t] process. If shellac is extracted out, though it will b[e] inferior quality, but it will fetch better price and it[s] export will bring more money. Similar is the cas[e] with Kushi, Molamma which are produced durin[g] manufacture of seedlac.

Some valuable materials are wasted durin[g] manufacture of seedlac. This is lacdye and some lac[k] wax. As such this produce is allowed to flow out wit[h] effluent water from the lac factories where it putrefie[s] and produces very obnoxious smell vitiating th[e] whole atmosphere. A simple method has bee[n] developed which is known as 'Hygenic Disposal of la[c] factory effluent.' By this process lac dye is precipitate[d] with other impurities including wax. This has bee[n] named as 'Lac Mud'.

Chemical analysis of dry lac mud indicates th[e] following properties.

Water soluble	25-30 %
Hot alcohol soluble (after water extraction)	20-22 %
Total hot alcohol soluble	45-52 %
Wax (P. ether)	8.8%
Nitrogen	4.5-5 %
Ash	7-7.5%
Acid value	79-80%

Above data indicate that the mud may be a ric[h] source of resin and wax and can be used as manur[e] also. At present this valuable product is totall[y] wasted. The factories may be advised to collect th[e] lac mud as suggested earlier and a centra[l] organisation may be established by the Stat[e] Government which will treat it to extract the valuabl[e] portion and the rest may be given to the agricultura[l] department to use it as fertiliser and carrier o[f] Rhyzobium culture. It has been reported by th[e] Rajendra Agricultural University Research Depart ment that dewaxed lac mud is more suitable for th[e] above purpose than Nilgiri pit which is being use[d] now.

It has already been stated that India has capacity t[o] handle sticklac more than four times the quantity i[t] produces now. At present the products of th[e] shellac with or without wax are exported and th[e] consumers at the other end use it as such or afte[r] having modified it to suit the end uses. Our Researc[h] Departments may be urged to take up time boun[d] programme to develop modified products of shella[c] for different purposes.

Indian Lac Research Institute has developed many useful products with details of production which are lying stored in their files, as stated earlier. These should be made available to the entrepreneur. Our

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The cotton textile industry in India

Prof. Iranna Hatti

In this article the author traces the story of the Indian textile industry down through the colonial rule to its present set up. Today, textile industry in India comprises of two sectors — organised mill sector and unorganised sector consisting of handlooms and powerlooms. In a country of India's size and population where capital is scarce, this unorganised sector too assumes importance in employment generation, balanced regional development and contribution to national exchequer, the author feels.

THE COTTON TEXTILE INDUSTRY is the oldest and the biggest of all major industries in Indian economy. The story of Indian weaving goes back into antiquity. The Indian craft of weaving tradition is intermingled with her religion, philosophy and way of life.

In the past, the craftsmen including weavers had a vital role in the self contained village economy. His weaving operation was based on personal relationship with other members of the community and his consideration was in terms of kind and status. During the 12th century, this splendid organisation was rudely disturbed by foreign invaders. The general condition was not conducive to the settled way of life. The weavers and merchants became frequent victims of arbitrary methods, employed by despots and feudal class. Later European industrialism destroyed weavers and artisans completely.

During the colonial rule, various factors contributed to the decay of weaving artisans. The unfair attitude of Britishers, aspirations of colonial rulers to use Indian economy as markets for their finished goods, low priced British goods dumped in the Indian market, disappearance of the Royal Courts, who were patronising the weavers, the change in taste and preference of the Indians, outmoded technology used by the craftsmen are the main causes for the decline of Indian weavers, who were wel-known for their splendid weaving activities in the world.

Modern textile industry has been built up on entirely new edifice in the form of large scale industry on the pattern adopted from modern Europe. The development of textile industry as a whole is a change-over from the traditional cottage industry pattern of production to organised and mechanised methods of production. This change is due to political status of the country.

The cotton textile industry was the industry, that set the pace for industrial evolution in India. Mechanised weaving of fabrics did not exist in India in early days. The simplest weaving machines, known as pit-looms were known to the world. These pit-looms are in existence in remote villages of India till-today in the name of handlooms. During that time, there were no powerlooms in India.

Apart from cotton handlooms and silk fabric weaving industry, there did not exist modern textile industry in India. The first attempt to start a textile mill was made in Calcutta by an Englishman, named Bowreah in 1818. This establishment was called in the name of Bowreah Cotton Mills Company. In South India two Britishers, Andrew and Frank Harvey, founded Tinnevelly Mills Company in 1883. Another pioneering attempt was made in the South in Pondicherry in 1828 by the French Ambassador. The cotton mill in the name of Blin and Delhrick Hill was started.

During 1854, pioneering efforts were made in different parts of India to start textile mills. However, rapid development of this industry took place only in Bombay, Ahmedabad and Coimbatore. Even today the concentration of mills is only in and around these areas. Some mills were set up in U.P., Bihar, Madhya Pradesh, Karnataka and Kerala after World War I.

Modern textile sector

Modern textile sector in India has completed one hundred and thirty five years. During this period, the progress of the industry has not been uniform. There have been ups and downs. Before independance, industrial development was based on Britain's political and economic considerations and the Indian textile industry was

subjected to British control. Therefore, the industry could not progress on the basis of Indian requirements. But the growth of this industry cannot be underestimated.

Before independence, the pioneering efforts of Indian entrepreneurs, the American Civil War of 1861-65, large demand for yarn from China and Japan, Russo-Japanese war of 1904 and Swadeshi Movement in 1930 encouraged the development of this industry. The textile industry in India gained much from the Swadeshi Movement. After the Second World War, the demand for Indian textiles favoured the growth of the industry by leaps and bounds.

After Independence, cotton textile industry was treated as an industry of great national and economic importance. All encouragements were given for its development, modernisation and reorganisation in industrial policies of the Government of India. Today the *growth of this industry is amazing.* (Table 1)

The organised textile mill sector was growing rapidly under the shadow of defective Government policies. Since the sixties, the organised textile industry has been passing through successive periods of crisis. Every crisis has left its economic strain on the sector. As a consequence, the organised sector is said to be marked persistently by the phenomenon of 'SICKNESS' Sickness is caused by endogenous as well as exogenous factors, such as sagging productivity standards, old and worn-out machineries, insensitive marketing and inflexible management styles, high cost of synthetics, continued erosion of purchasing power, upward trend in cotton prices and cost-effectiveness of non-organised textile sectors etc.

During the sixties, the organised sector saw a declining trend in profitability. By the end of the decade a vast number of privately owned textile mills pulled do shutters permanently. To stop the disturbing consequ ces of rapid closures, the Government at the Centre ; in the States stepped in and nationalised closed mi Under the umbrella of National Textile Corporation the State Textile Corporations in the public sector in seventies, closed mills were reopened. This meas hardly improved the organised mill sector's performan Sickness persisted and under criteria adopted from F Guidelines, as many as 89 textile units were declared s by the Banks in June 1980. The total outstanding B credit of these sick units was Rs. 349.56 crores. T figure rose to 99 in June 1983 and the total outstand bank credit of these amounted to more than Rs. 406. crores.

In the organised mill sector haphazard developm could be seen. The reasons for such haphazard devel ment were the planners, emphasis on development heavy industries to establish a sound industrial ba which entailed a colossal investment and therefore, view of paucity of financial resources, reliance came to laid on the hand and household sector for the generati of consumer goods needed by the community. Follow the recommendations of the Kanungo Committee 1954, the organised industry, which was on the thresh of the first plan and had as many as 150 uneconomic ur as a result of war time operations, was relegated to background and a policy decision was taken by Government to freeze the weaving capacity of organised industry and to assign the entire additio clothing requirements envisaged in the Second P period to be met by the handloom industry. In view of freeze, and the rising demand for textiles caused by lar flow of money into circulation arising out of investment heavy and basic industries, coupled with favoura monsoon, shortage of supply of textiles occured due to failure of handloom industry to deliver the goods. T

Table 1

Growth of Indian Cotton Mill Industry

Year	No of Mills			Installed spindles (millions)			Installed looms ('000s)		
	Spinning	Composite	Total	Spinning	Composite	Total	Ordinary	Automatic	Total
1951	103	275	378	1 84	9 16	11 00	—	—	195
1956	121	291	412	1 86	10 19	12 05	191	12	203
1961	192	287	479	3 05	10 61	13 66	183	16	199
1966	283	292	575	4 36	11 76	16 12	179	130	209
1969	358	289	647	5 31	12 12	17.43	172	36	208
1974	326	289	615	5.95	12 19	18 14	166	40	206
1978	347	290	637	7 40	12 30	19 70	162	44	206
1980	370	291	661	8 16	12 52	20 68	158	48	206
1981	400	291	691	8.47	12 61	21 08	159	49	208
1982	442	281	723	9 35	12 43	21 78	158	52	210
1983	525	280	805	10.13	12 40	22 53	158	53	211
1987*	744	283	1027	13 77	12 33	26 10	153	55	208

Source : Handbook of statistics on cotton textile industry. 16th Ed
* AIFCOSPIN Annual Report 1988

artificial scarcity led to the proliferation of powerlooms in the textile sector.

Today textile industry in India comprises of two sectors—organised mill sector and unorganised sector consisting of handlooms and powerlooms. The inner weaknesses of these two sectors, led to the proliferation of powerlooms in the Indian economy. Today powerlooms play a prominent role in fulfilling the avowed objectives of planning i.e. utilisation of idle money resources, employment generation, meeting the clothing requirements of the masses and contributing to the national exchequer. But the affairs of the powerloom industry is far from satisfactory. It is sandwitched between the organised mill sector and the handlooms.

Decentralised sector

Under colonial rule, modern India has raised an entirely new edifice of voluntary institutions in large and medium size trade and industry on foundations adopted from modern Europe. It is an impressive edifice built brick by brick as Indian enterprise has acquired self-confidence and grown conscious of its own identity. The present day organised textile sector owes its tribute to the circumstances credited by the British rule.

After independence, our leaders fell in love with modern sector due to purely psychological and ideological tenets. The technical advances had brought benefits to developed nations. Undoubtedly the glamour of technical novelty was so dazzling that it blinded them to what technology as a by-product was doing to their economy viz. to its social costs in terms of unemployment and increasing income and wealth disparities.

In India, even after establishment of Swarajya, we are faced with vast misery in our towns and villages throughout the country on the one hand and emergence of monopolies in the organised sector on the other

Mahatma Gandhi approached the problem of abject poverty in the country through strengthening the economy of the villages, which provided livelihood to over 70% of the population. He emphasized that cottage and small sector industries could provide employment opportunities to the masses in the rural areas. His approach of decentralised sector envisaged promotion of human dignity through self-reliance, where the process of production was chosen on the basis of its compatibility with one's way of life, rather than as a requirement for increasing the supply of goods for exchange in remote markets. Gandhi was not against modern technology if its application could directly improve the fulfilment of people's basic requirements. His strategy was to provide widespread employment opportunities and income without the concentration of economic power in the hands of a few accompanied by large scale operation

The economic strength and efficiency of small scale, decentralised and labour incentive handloom and powerloom textile industry as Mahatma Gandhi advocated lie in its low fixed costs, low expenses for repair, maintenance, obsolescence and depreciation, low inventory charges, rapid turnover of material and product, little storage and transportation costs, security of employment, psychological and physiological healthiness and adaptation to man's nature of work, its freedom and room for sound individual development.

After realising the worst consequences of organised sector on the Indian economy Nehru said, "I began to think more and more of Mahatma Gandhi's approach . . . I am entirely an admirer of the modern machine and I want the best machinery and the best technique; but taking things as they are in India, however rapidly we advance in the modern age, the fact remains that a large number of our people will not be touched by it for a considerable time. Some other method had to be evolved so that they become partners in production even though the production apparatus may not be efficient as compared to modern techniques."

None can deny the role of the decentralised sector of the textile industry in developing India. The concept of decentralised sector has much relevance in the Gandhian economies and in the democratic form of Government.

From the point of view of financial assistance and job creation, the industrial credit and investment corporation of India revealed that it required about Rs. 40,000/- for creating one job in ICICI aided large scale industries. As against this, the investment in village industries of the decentralised sector, for the creation of one job would be of the order of only Rs. 4,000/- to Rs. 5,000/-. The small industries in the decentralised sector might have a very short gestation period of one or two years but for the large scale units, it is not less than five years.

In a country like ours, where capital is scarce and labour is abundant, this sector assumes greater importance.

Prof. Iranna Hatti, Head, Deptt. of Economics Arts & Commerce College Banhatti (Karnataka)

Health

Mental Health

Dr. M.A. Khan & Dr. M. Yunus

MENTAL HEALTH IS ONE of the three important aspects of health, other, being physical and social, which is incorporated in the WHO definition of health Just as physical health is subject to a lot of variations and fluctuations, so also mental health. The subject is of special relevance in our modern day life which is fraught with ever increasing and frequent stresses and strains due to a faster pace of life. All people do not react to stress in the same way, their tolerance varies and in this process the family has an important role to play.

Mental health is generally equated with happiness, satisfaction and normal behaviour. It shows in one's ways of thinking, adjustment in life, his relationship with others and his effective functioning in the different roles of daily life.

Mental ill health is one of the most disturbing and disabiling conditions of life. It affects not only the person but also his family and the community and is made worse by the social stigma attached to it. A large number of persons are affected many of whom are children. As many as 20 per cent of all patients attending general health care facilities in both developed and developing countries do so because of psychological symptoms. The problem is gradually on the increase due to such factors as urbanisation, industrialisation and increase in life span together with breakup of the joint family system which has increased the psychiatric problems of the elderly. To this is added the problem of a population explosion which had led to an increase in poverty, disease, crime, unemployment etc., all of which are stressful situations precipitating mential illnesses. It is also one of the few problems which imposes a very heavy burden on the family.

Morbidity statistics

Mental ill health is a worldwide problem. The majority of cases (80%) are to be found in the developing countries, and children below 15 years constitute 33 per cent of the global cases. Worldwide there are about 40 million severe cases, 20 million cases of Epilepsy and 200 million who are incapacitated by other minor mental and neurological conditions.

In India mental ill health is a common and widespread problem being equally common in urban and rural areas. Schizophrenia is the most common form. In India Mental illness contributes to 30 per cent of all causes of disability. Roughly 1-2 per cent (7-14 million) of the population is affected of which 30 per cent are children, the majority of cases being that of Mental Retardation. The number affected per thousand population, have been given by Prof. M N Wig as:

Serious mental disorder—10-20/
Minor mental disorder—20-60/
Emotional problem— 200/

In India about 2.5 lakh new cases are added per year.

Facilities available

The country has about 42 mental hospitals with a total bed strength of about 25,000 which gives a bed strength of about 36 per million population against the WHO recommended norm of 2,000 per million. In September 1985, the Government began a National Mental Health Programme under which we have two training centres for psychiatric care, the Central Institute of Psychiatry at Ranchi and the National Institute of Mental Health and Neurosciences at Bangalore. There are about 200 Psychiatrists Units with a total of about 1,500 Psychiatrists and 24 Post Graduate Training Centres in the discipline. Till recently our production of Psychiatrists was about 100 per year.

Suggestions

Each Medical College should have a full fledged Department of Psychiatry with adequate and qualified staff and sufficient beds.

Undergraduate training in psychiatry needs to be strengthened because the problem is gradually on the increase and hence we have to plan well beforehand. The aim should be that all graduates should have a working knowledge of the subject and be able to recognise and treat minor cases at their level, be it as a private Practitioner or at the level of the Primary Health Centre.

We should establish community based psychiatric services and for this we should aim for at least one Psychiatrist at the district level whose job would also be to supervise Mental Health Care Programme in rural areas by regular visits to the Primary Health Centres in his jurisdiction.

The Central institutes should mainly be involved in training and research besides acting as referral centres.

There are a lot of persons who could help not only in providing proper mental health care but also in detecting it. Among such persons, school teachers and family members are especially significant, hence they should be made aware by proper training.

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Book Review

Management Accounting and Financial Control by Dr. S.N. Maheshwari, Published by Sultan Chand & Sons 23, Daryaganj, New Delhi-110 002. Students' Edition Rs. 85.00 Seventh Edition 1990

The author is a former Professor and Dean, Faculty of Commerce and Business Management, Goa University, Goa and presently a faculty member of the Department of Commerce, Sri Ram College of Commerce, Delhi University, Delhi After publishing the First Edition of the book in January 1981 he has been revising, updating and incorporating additional chapters in subsequent editions

The Seventh Revised and Enlarged Edition of the book is its latest version divided into seven sections spread over nearly 1200 pages Section A introduces the fundamental concepts and principles underlying management and financial accounting Section B explains different tools of financial analysis such as Ratio Analysis, Funds Flow Analysis, etc Section C is concerned with the utility of Management Accounting for planning and control with focus on complex topics like Variance Analysis, Marginal costing, Alternative choices in decision making, etc Section D deals with Funds Managment. Two new topics have been added in the latest Edition; these relate to 'Sources of Finance' and 'International Financial Management'. Section E covers miscellaneous topics such as Inventory Valuation, Human Resource Accounting, Social Cost Benefit Analysis, etc Two new chapters on 'Computer and Data Processing' and 'Business Risks and Insurance Coverage' have been added in the latest Edition. The last two Sections F and G deal with Advanced Solved Problems and Advanced Unsolved Problems respectively.

The author has taken pains to cover all relevant aspects of financial accounting in a single compressive volume. Though the book is primarily meant for students of M Com, MBA and other Professional Courses in Accountancy, even non-professionals and general readers will also find it useful and informative.

M.K. Ghoshal

Regional Rural Banks and Economic Development by A.B. Kalkundrikar, published by Daya Publishing House, Delhi; Pages 211; Price Rs. 190.

As revealed by the All India Rural Credit Survey (1954), the Banking system in India due to its urban orinetation, had contributed to about 1 per cent of rural credit. Subsequently, upon the recommendation of the All India Rural Credit Survey Committee (1954), the Imperial Bank of India was nationalised, as a result of which the State Bank of India was created in 1955, with a view to provide banking facilities to the rural areas by opening more rural branches and giving a new direction to rural credit. The National Commission on Banking had also made several recommendations for establishment of Rural Banks, for the first time in 1972 Subsequently, with the nationalisation of 14 major Commerical Banks in 1969 and 6 more Banks in 1980, the share of the Public Sector Banks in the total outstanding deposits and credit of the commercial banking system, went up to 90 per cent of total banking business.

Initially, 5 Regional Rural Banks (RRBs), first came into existence on 2nd October, 1975, at Moradabad (UP), Gorakhpur (UP), Bhiwani (Haryana), Jaipur (Rajasthan) and Malda (West Bengal) There were 121 RRBs by the end of June, 1982, covering 207 districts in 19 States. Thus, as a whole, commercial Banks including RRBs opened 262 branches during July, 1986 to March, 1987 bringing the total branch network to 53,565, of which 75 7 per cent were in the rural and semi-urban areas. This indicates the deep rural penetration of the Banking system for the benefit of the rural sector. The RRBs are considered as the active agents of economic development of the rural masses They have now become integral part of the rural credit structure The RRBs indicate a rural bias in Banking business as may be seen from their growing numbers in the total branch network. It is hoped that the acceleration of this process during the Eighth Plan period would serve the cause of rural development by not only retaining rural savings in rural areas but also attracting savings of non-rural sector, besides making the rural banking more viable and profitable.

The present book is an abridged version of the doctoral thesis submitted by the author to the Karnataka University, Dharwad. In the present book an attempt has been made by the author to analyse the role of RRBs in the economic development through a sample survey at the operational level and macro study at the State level in Karnataka. The objectives of the study include (i) a review of the working of RRBs in Karnataka, (ii) evaluation of the contribution of RRBs with the economic development of Karnataka, (iii) comparison of the role of RRBs with other financial institutions in the rural sector, and (iv) making necessary recommendation for effective working of the RRBs. The present book is a diagnostic study of RRBs in Karnataka, which provides insight into the problems and performance of the RRBs

The Book consists of 9 Chapters including the Chapters on recommendations and postscript. Chapter I gives a detailed outline of the research design and methodology alongwith the objectives of the study. In the Second Chapter the genesis and rationale of the scheme of setting up Regional Rural Banks has been discussed. Chapter Three gives

an account of economic profile of Karnataka in a comprehensive manner. An overview comprising the trends in the growth of branches of the various RRBs, deposit mobilisation by the RRBs, their credit policy profitability of RRBs, and their role in the economic development of the rural areas of the State of Karnataka are set out in Chapter Four In Chapter Five, 2 case studies comprising of the Tungabhadra Grameena Bank and the Malaprabha Grameena Bank have been analysed and discussed in fair detail alongwith their organisational structure, functioning and evaluation of their impact on the economic development of the concerned rural areas in Karnataka Besides these two case studies, the author has also given a rather brief examination of the working of six other RRBs, namely Cauveri Grameena Bank, Krishna Grameena Bank, Chitradurga Grameena Bank, Kalpattaru Grameena Bank, Kolar Grameena Bank and Bijapur Grameena Bank, in Chapter Six. However, all the case histories described in the book would be useful to the reader While the findings and the conclusions are set out in Chapter Seven, the recommendations made by the author are given in Chapter Eight. Although a couple of references and notes have been given at end of a few Chapters, inclusion of a detailed Bibliography on the subject would have enhanced the value of this book, particularly when it is an abridged version of author's Doctoral thesis The publishers deserve to be complimented in doing a fine job of printing and bringing out this book in a hard cover. However, as the book is very highly priced, it may therefore, remain out of reach of common readers, specially the student community Nevertheless, it will serve as a reference book on RRBs and would be useful to the Banks, rural entrepreneurs, planners, researchers and all others who may be associated with one or other aspect of rural banking system

Dr. Mahendra K. Pandey

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entrepreneurs are not so advanced to come forward themselves. With the objective of dissipating such information a production unit was added to the Lac Research Institute At the start it worked well The prospective manufacturer's came forward and gathered informations But gradually, they have stopped -communicating with the institute. This activity should be revitalised

In the Research Institute, work on products development should get priority To provide special incentive to the workers special awards should be constituted. Gradually efforts should be made to give the Institute an International Character

It should be clearly borne in mind that synthetic is not a competitor to shellac, and all efforts must be made to use synthetic as adjunct to shellac to improve its properties which may help in expanding the field of uses of shellac. Scientists with knowledge of use of synthetic should be engaged by the Institute Workers from foreign countries may be invited to work in the Institute which will help to achieve the purpose of the Institute.

International level conferences should be arranged to discuss the problems of lac and to find solutions to them. First a conference of the consumers of shellac within the country including the consumers who have given up the use of shellac and prospective consumers should be arranged. The participants may include Government organisations, private consumers, manufacturers of shellac and shellac products, scientists of different categories, interested in shellac.

In a nut shell it can be said that all out efforts ought to be made to augment consumption of shellac in all possible fields of its use. Increased consumption will result in increased demand which will lead to increase in production □

S.R. Pandeya, Industrial Correspondent, Ranchi and Dr. T. Bhowmic, author.

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There is little use in curing any form of disability of which mental ill health is one, unless we also try to rehabilitate the person in society, so that he is socially integrated in all activities of the community. It is important to know that isolation accentuates the degree of a disability including mental illness. Rehabilitation therefore needs proper and planned execution for which the most important pre-requisite is the removal of social stigma. Health education therefore needs top priority. This measure would also bring out the people to seek theatment. Mental services can best be provided not in isolation but integration with other services and should also be community based.

All services and problems have to be regularly and continuously monitored and evaluated so that we can assess the impact and find our lacunae.

All health workers working in all departments of health must be aware of the fact that social and psychological therapeutic measures are just as important as regular medication, and they should therefore be conversant with the techniques and knowledge of behavioural sciences.

We need to reorient our mental health services from being specialist beased to general and non-specialist based. The success of this has been proved at Chandigarh and Bangalore and hence it must be implemented more widely.

Dr. M.A. Khan and Dr. M. Yunus, Lecturer cum-edidemiologist & Reader respectively, Jawaharlal Nehru Medical College, A.M.U. Aligarh.

Development Diary

Special Armaments

The Defence Research and Development Organisation (DRDO) will soon come out with a number of special armaments for use by the three Services. The anti-tank 'FSAPDS' ammunition for 105 and 120 mm calibres has already been developed and tested. It is expected to be handed over to the ordnance factories for production in near future. Development of sea mines for use against submarines and ships is in advance stage. The upgraded version of the mine for underwater work by naval divers and frogmen has been developed and is undergoing trials by the Navy. An advanced microprocessor based naval mine is also in final stages of technical trials. Among other armaments in advance stages of development/trial at DRDO laboratories are a mobile target to simulate submarines for naval exercise, a special-purpose double action mine fuse and a surface-to-surface multi-barrel rocket launching system.

Incentives to fly ash brick makers

Manufacturers of fly ash bricks are to get incentives from government. Bricks containing more than 50 per cent fly ash will be exempted from Central Excise duty for a period of two years upto 30th November 1991. In coal-based thermal power plants flue gases containing fly ash are passed through electrostatic precipitators or other devices to arrest the ash particles. The ash so arrested is stored in ponds and in rare cases utilised in cement manufacture. Such disposal is frought with environmental problems including misutilisation of land. At present fly ash generation in the country is about 30 million tonnes per year and it is expected that by the year 2000 it would be 70 million tonnes per year.

New nomenclature

The nomenclature of the Graduate Membership Examination of the Institution of Electronics and Telecommunication Engineers, New Delhi is "AMIETE EXAMINATION". The examination (with new nomenclature) will be recognised for the purposes of employment to superior posts and services under the Central Government.

Project elephant

A project to save elephant and prevent large scale immigration has been launched. The main aims are: improvement of elephant habitats by suitable plantation; erecting electric fans along forest border in the areas where damage to crops by elephants is severe and trans-location of elephants to suitable and safer habitats. The project follows successful implementation of the 'Project Tiger'.

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Yojana: 33 years ago

(Sunday, May 19, 1957)

The Hand Behind The Loom

The object of celebrating a handloom week every year is to make the people conscious of the role of this industry in the country. Nearly 12 million men and women are engaged in working more than 2 million handlooms. In addition, there are hundreds of thousands of others engaged in designing, dyeing and marketing their produce.

Handloom week is well timed. The harvest is over and the peasant can turn his hands to profit while waiting for the next ploughing season. Although handlooms are largely manned by professional weavers for whom it is an all-time occupation, they are also an industry to which the farmer can turn during the months of idleness and add to his income. It is for this reason that our plans have placed so much emphasis on this activity. In the 2nd Plan period the larger part of the increased production of cloth is expected to come from looms operated by hand; of this a little less than half from yarn spun by Amber Charkhas. Those who still question the wisdom of encouraging spinning wheels and weaving by hand in the machine age over-look the traditional and employment angle which are the warp and the woof of the fabric of handlooms.

Government assistance to this small-scale industry takes many forms. More far-reaching than giving of money, machinery and advice is the setting up of co-operatives which now control 10½ lakh looms in the country. There are not many other fields where the effort to promote co-operatives has been as successful.

Lady with the iron will

In Tehsil Jagraon of Ludhiana district there was a small little-known village called Sidhwan Khurd. It is still a small village, but it is no longer little-known. For coming up slowly and gathering strength with the years is a remarkable institution that has become the talk of the neighbouring villages. And the core of this strength is an equally remarakable woman called Harparkash Kaur.

The college has added many bricks, many rooms, many buildings to itself during a period of 50 years. When it was first started in memory of Bibi Harparkash Kaur's brother, it was just a small primary school, to which a handful of girls came sauntering through the fields. Today Harparkash Kaur has made it a live, efficient and growing institution of rural Punjab, with almost 800 students from the primary to the B.A. and B.T. classes. All institutions are built up step by step, but few are so completely indentified with the indomitable spirit of one human being as this one.

Harparkash Kaur is a courageous widow. She is ambitious about only one thing: doing something worth-while for her birthplace, and seeing her late father's wishes fulfilled thereby. In this she has succeeded, for the college that she has shaped is recognised as a model for the State.

New life in Kolhapur block

The Kolhapur Development Block is pulsating with new life after 4½ years of community development. Three lakh people living in its 251 villages have given more than Rs. 10 lakh in Shramdan and nearly Rs. 8 lakh in cash. Co-operative Societies are active; new records have been established in agricultural production; more than a thousand acres of waste land have been reclaimed. Hundreds of young men who have set out for training in small industries like carpentry, blacksmithy, weaving and shoemaking etc. are getting new opportunities to earn honourable living.

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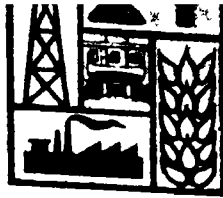
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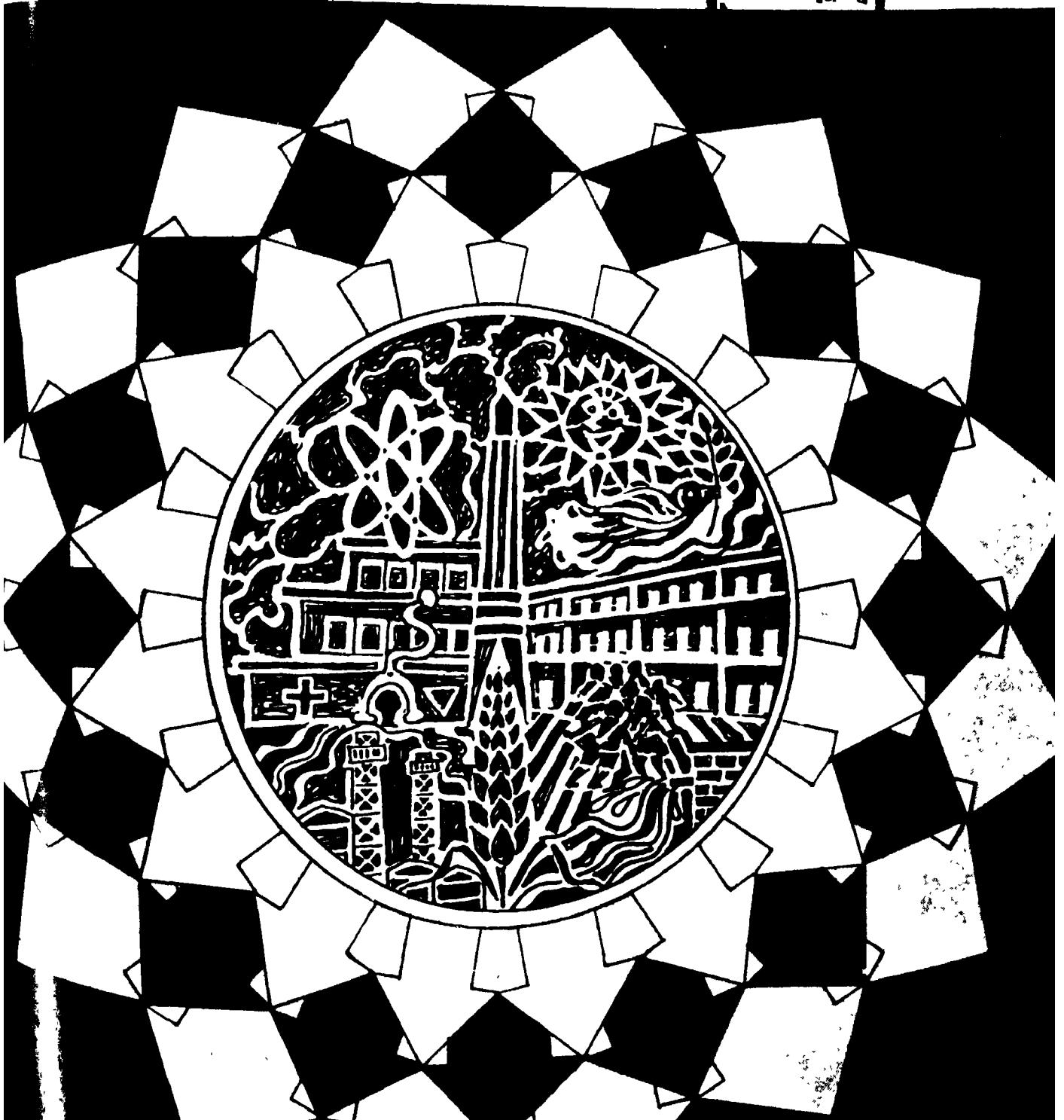
Development Diary

Environment courts

The Government has decided to set up Environment Courts to deal effectively and quickly with the cases relating to environment. This is for the first time, that such a court is being established anywhere in the world. The Government is also thinking of introducing civil liability in environmental cases so that any citizen affected by pollution will be able to get due compensation from the pollutor promptly. It has also been decided to introduce a system of direct funding of States Pollution Control Boards through the Centre. The World Bank has agreed to pump in 300 million dollars i.e. about Rs. 500 crores to strengthen pollution control boards, to give loans to polluting industries, to set up treatment plants and to construct common effluent plants in the four States of Maharashtra, Gujarat, Uttar Pradesh and Tamilnadu.

Expert Committee on radiation hazards

The Ministry of Environment & Forests has constituted an Expert Committee to study the effects of low level radiation on the population living in the coastal areas of Kerala **in Quilon district and the adjoining areas. The Committee consists of specialists from molecular biology, radiation therapy, human genetics, occupational health and medical statistics.**

In the coastal area of Kerala in Quilon district and the adjoining areas, radio-active sands were discovered several decades back. For nearly 30 years, these sands are being mined and processed by the Indian Rare Earths Limited (an organisation of Department of Atomic Energy). The local population who are residing in Chavara-Neendakara stretch of the Kerala Coast are exposed to the low level radio-activity of this sand for several decades.

The Centre for Industrial Safety and Environmental Concerns of Kerala, a voluntary agency, carried out a health survey on the population living in this long coastal belt and have stated that they suspect a large number of individuals suffering from genetic disorders. They have observed that genetic disorders in the exposed population were four times higher than in the non-exposed population in the nearby villages. They have reported a statistically significant difference with regard to mental retardation, epilepsy, blindness and skeletal abnormalities in the exposed population.

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Environment

"Civilizations have followed forests and deserts followed civilization."

In Harmony

The one major issue in which the global society seems genuinely concerned is environment. The situation is getting alarming day by day and the attempt all over is how to overcome the mounting problem. The factors fuelling the fire are: population explosion, deforestation, increasing demand on land for food and raw materials, rapid industrialization, urbanization and the strain on the ecosystem caused by infrastructural development. This has in turn raised a number of questions and the basic one being compatibility of economic growth and environment. The subject continues to be debated in various national and international fora. The shades of opinion and tenor of expression are varied. The aim of the exercise is, however, clear: to create public awareness on the looming danger and take suitable timely action. The choice ultimately is not one at the cost of the other; it is in assimilation and in harmony with each other.

Environment

Tehri Dam – an assessment and a vision

S.P. Singh

THE TEHRI DAM PROJECT has gained significance because of the dimensions of the project and the multitude of the issues which usually have to be addressed in unequivocal terms before a project is completed. This has also gained focus because Tehri Dam site happens to be one of the few remaining large dam sites in India. Consequently, it is important for us to debate upon the issues that have been raised in the public and to express ourselves, again in unequivocal terms, as regards the importance, usefulness and long term safety of the dam.

While such issues especially those concerning the safety of the dam have been freely discussed in media, in their response aimed at allaying such concerns. project authorities have felt constrained on account of the difficulty of expressing in populist terms, the sound technical and scientific reasons, which overwhelmingly support the dam project. However, THDC is making constant efforts to put before the public the conclusions of the immense amount of studies and researches that have gone behind the design of the dam and the decision to go ahead with it.

Dam safety

Doubts about safety have been expressed by many on account of the fact that the dam is going to be located in a region of high seismicity and is, therefore, potentially unsafe. If one were to go by this argument, then no body should live in such areas of established high seismicity-Japan, Central Asia, Western United States, Central America, for instance. The ground fact is that some of these areas have world's largest concentration of material wealth–dams, reservoirs, big industial complexes, high rise buildings and big human settlements. All this has been possible because there is technology available to build fail-safe structures capable of withstanding large earthquakes expected in these areas. In our country–the entire Himalayas, broadly speaking, is a seismically active zone. Part of this region-the North-East is particularly prone to severe earthquakes. Yet we have not evacuated the area and the fact of the region being seismically active has not deterred us from carrying out development works in this region. Coming to dams, we have few of the largest structures of their kind in the world, functioning problem-free for the last quarter century-Bhakra Dam in India and Tarbela and Mangla Dams in Pakistan. Seen in this context, the construction of Tehri dam in Himalayan terrain is nothing unprecedented and constitutes absolutely no ground for concern

Question is often asked, how can we be sure that designers are right, when they claim that they can build a safe Tehri Dam. To such doubting Thomases, one could cite many everyday examples when they have to rely on somebody's expertise for assurance of safety-travelling in jumbo jet, one has to rely on pilot's capability for safe travel; while undergoing a brain surgery, patient's life is entirely dependent on competency of the neurosurgeon, so on and so forth. In this particular case too, the nation has to repose confidence in the dam designers' capacity to do their job well. Tehri Dam has been designed, using state-of-the-art techiques assuming a worst scenario with regard to occurence of earthquakes. It is capable of withstanding earthquakes of intensity 9 R.S. Adequate safety margins have been kept and many back-up defensive design measures have been incorporated to provide an absolutely safe structure.

That the present-day dam technology is adquate, has been repeatedly proved by successful behaviour of dams built in high seismic risk areas. The very fact that hundreds of dams have been built in seismic regions of the world and have not been severely damaged in hundreds of strong earthquakes in the last one century, is an indication that the science and art of dam design is reliably understood and no disaster may be expected even in very strong earthquakes.

Along with the issue of seismic risk in Tehri area, there is an associated question of what is called

Reservoir Induced Seismicity (R.I.S.). Fears have been expressed that when the Tehri reservior fills up after dam is constructed, the load of water in the reservoir could trigger an earthquake. This phenomenon (R.I.S.) has been observed at a few dam projects in the world. In case of majority of dams constructed all over the world, however, R.I.S. has been found to be absent. All over the world, extensive studies have been carried out to understand this phenomenon. There is, as yet, no agreed basis to predict whether R.I.S. would occur on a particular project or not. There is, however, consensus of opinion among the eminent researchers about the factors which are conducive for occcurence of R.I.S. and those which explain the absence of this phenomenon.

Reservoir Induced Seismicity phenomenon has been found to occur in cases where foundation rocks are pervious enough to let water seep through to deeper layers of strata below or where such rocks are so strong that these can go on accumulating strain without deforming which suddenly fracture when these are overstressed resulting in earthquake. These conditions are absent in case of Tehri. Also it has been seen that where rocks are in compressed state, as is the case in Himalayan Seismic belt, there is not only no R.I.S. but there is reduction in levels of natural seismic activity. This is precisely what has been observed in case of mangla and Tarbela dams. In none of the rservoirs -created in Himalayas-Bhakra, Beas, Ramganga, R.I.S. has been observed. there is, thus, every justification for the assessment that Tehri reservoir would not lead to R.I.S. Further in this connection, it may be mentioned that even in cases where R.I.S. has occurred, the intensity of earthquakes generated is generally of the order of less than 4 i.e. earthquakes which are barely felt by humans and not capable of causing any serious damage. Moreover, area where such phenomenon has been witnessed is generally confined to within 20 to 25 kms radius from the reservoir and the induced seismic activity tapers of within few years. Thus even assuming occurence of R.I.S., its impact in terms of damage potential to inhabitants of the area in immediate vicinity of reservoir, would be negligible. The eminent, internationally known expert on earthquake resistant design– Prof. Jai Krishana is of the firm view that (a) induced seismicity does not increase the cost of project (b) induced seismicity, if at all induced in few sites, is not a design factor but may cause scare and damage poorly built dwellings (which can be strengthened to provide assurance), and (c) side effect of 'induced seismicity' need not stand in the way of constructing dams.

Viability

In the debate questions have been raised by many regarding the viability of high dams in general and about the Tehri Dam in particular. Alternatives which are being put forward are construction of a number of smaller dams instead of one large dam or smaller dam structures, which are designed not for storing of water but for diversion of, whatever flows are available in the river at particular point of time to power/irrigation channels for providing power/irrigation benefits i.e. what is referred to in technical jargon as 'Run-of-the-river' schemes as against a storage dam project. Some persons have even claimed, albeit without facts and figures, that on the basis of criteria for economic appraisal, high dams are not viable and that smaller schemes of the type described above are more cost-effective.

The issue of one large dam versus small dams for development of a particular water resource cannot be decided merely on the basis of any academic discussion without taking into consideration the situation on the ground. The location of dams and their size is a site-specific issue and is determined by topography, geology of the area and quantum of flows available. It is, in the first case, not automatic that choice is available in every case to have a number of smaller dams instead of one high dam. In cases where such a choice is technically available, it is highly unlikely that alternative of a few smaller dams would be cheaper. For instance to replace a single large dam irrigating 100,000 ha, 10 to 20 small dams each irrigating 5000 to 10,000 ha would need to be constructed either in upper or lower reaches of a water-shed. Such a number of dam sites are rarely available in actual practice and this may necessitate curtailment of envisaged development. In case of latter alternative, construction of dams in upper reaches would invariably involve problems of transportation of heavy construction equipment, paucity of local skilled labour and submergence of valuable forest lands. On the other hand construction of dams in lower reaches would generally involve more submergence (usually of cultivated land) per unit of storage due to flat nature of topography. The actual experience is that when a number of smaller storage dams are constructed instead of one single large storage dam, the costs and submergence areas are invariably more. A study carried out by Central Water Commission (CWC) for Jonk sub-basin of Mahanadi river basin showed that compared to cost of one large dam at Girna, cost of alternative of having 8 smaller dams (for same amount of storage) was 150% and involved 60% more submergence. Detailed studies carried out by CWC indicate that cost of one KW of installed power capacity for hydro schemes increases three fold in small dam compared to a large dam. How large dams can have a multiplier effect on benefits can be appreciated from one typical case study. On Chenab river, a number of diversion (run-of-the-river) scheme have been planned for power generation. It is also proposed to have one major dam at Burser in the upper reach of the river. With that single storage and regulated water releases therefrom, the power generation from projects located downstream would get doubled from 10,000 million units to 20,000 million units. So it should be at once obvious that so far as dams are

concerned 'small is not beautiful' in most cases

Coming to Tehri Dam, before arriving at the present optimum proposal of a high dam, a number of alternatives envisaging smaller storage dams and diversion dams for utilising available river flows (without storage) for power generation were studied The study indicated that smallar dams were costlier alternatives, yielding lesser benefits In case of diversion schemes, the number of energy units produced would have been almost half of what is planned at present whereas the generation costs would have been just the double of what is envisaged from the storage scheme Also these would not have provided the benefit of peaking power i e. extra power needed to meet the peak requirement of energy in course of day, as also no irrigation benefits. In short, all these alternative proposals were found to be totally non-competitive.

Further in context of dam size, to take some layman's examples, a number of small roads of narrow width are never a substitute for a proper broad autobahn and a large human settlement cannot be substituted, in economic terms, by a number of small ones. What is being forgotten is that (a) future benefits of a large dam are never restricted to the objectives of the dam alone and (b) that construction and associated environmental and ecological costs do not proportionately reduce when the size of the dam is reduced. A large number of small dams do not add upto a large dam, and there is no question of exceeding the benefits of a large dam.

The Tehri Dam is not important because this is a dam per se; it is important because the whole economy of Tehri Garhwal region is expected to undergo a sea-change not only in terms of the objectives of the dam but also in terms of extension of economic pace, industrial and agricultural development of the region, and economic and physical accessibility. Tehri Dam is going to be a prime mover of prosperity of entire region, just in the same way as Bhakra-Nangal project has been for Punjab and Haryana. Tehri Dam is the focal point around which new towns will grow, existing settlement will expand and the benefits of development would accrue to a large section of the hill population. If on the other hand, a number of smallar dams had been contemplated then two things would have happened: (1) the number of people affected in terms of rehabilitation would have increased compared to that which is now affected by the Tehri Dam adding to the initial cost and (2) the task of development would have been much more difficult because of the accessibility of the different locations and characterstics of the various dam sites. Thus integrated economic development of the Tehri Garhwal region would have become, if not impossible, certainly generally more difficult and much more long-term.

Rehabilitation

In all projects wherever existing settements of population are affected, rehabilitation has always been a major problem. Not only because moving people from their hearths and homes is always a traumatic experience for the population but also because the legal and logistical difficulties experienced by the project authorities have always caused delays and sometimes given rise to bottlenecks that have caused public outcry and ill feeling all around Tehri dam, of course, is no exception. However, in the case of Tehri Dam, the problems of rehabilitation have been seen, from the very beginning, to be one that require continued efforts and attention. Therefore, the rules had been clearly laid down and new settlements clearly identified and functionally demarcated so that the fiscal aspects of resettlement should not cause any difficulty to the population being rehabilitated. This leaves open the issue of emotional attachment to land. Fortunately, here also the existing economic base as also the characterstic of existing population, have been helpful. As far as Tehri town is concerned, major segment of the population consists of Government employees and businessmen from areas outside the Tehri region who are comparatively new comers to the town. The question of emotional attachment to land does not exist in these two major segments of the population. For those engaged in trade and commerce, wherever their business grows, would be a home for them and for those engaged in Government service, since these are all transferable jobs wherever the Government transfers them would also be the home for them. As for the rural population, the economic base of the villages which are being affected by the reservoir has been traditionally weak. The movement of such population to areas where they will be more easily integrated with the larger metropolitan economy is, in fact, a blessing Further, the provision of infrastructure in rural rehabilitation colonies has provided them with amenities which so far they did not enjoy in their native places Inspite of this, the THDC is extremely concerned about the socio-economic and socio-psychological effects of the mass movement of people and, therefore, has planned to provide continual monitoring of the process by which the rehabilitated population will get integrated with their new social milieu. All efforts are also being made to establish an open boundary between the Corporation's rehabilitation personnel and the local population so that the feeling of concern and care is clearly communicated to the population. In no way does the Corporation intend to ride roughshod over the feeling of the population and wherever antipathy exists, the efforts is always to get over such feelings through open communication and dialogue. The Corporation also intends to undertake a number of measures designed to further improve the economic base of the rural rehabilitation colonies as well as New Tehri town.

Environment degradation

rious agencies have raised issues regarding ronmental degradation caused by the dam. What it generally pointed out is that environmental adation is already there. The dam will hardly to it except for submergence of certain areas. t from a few botanical and zoological species, h will be affected by the filling up of the voir, there is, in fact, no other danger. For such ted places, the project authorities, in consultation the concerned agencies and academic institutions, already decided to set up botanical gardens in reas where such species may be preserved.

need to reflect upon the point made in the ious paragraph that environment degradation is dy there. Due to the low level of literacy and lthe ure on the land over the years, the Tehri hills already become environmentally degraded. the recession of the glaciers in the upper ment area of the Bhagirathi has left behind ly denuded hills. It should be noted that neither ese phenomena have anything to do with the However, since the project authorities have led to take a holistic view of the problem, such onmental degradation as there is, has not been ded from the ambience of the total project. It is osed to take-up large scale afforestation, and on this has already begun. Simultaneously, micro-ecological systems are being studied. ecological regimes, which will keep balances the new overall regime introduced by the truction of reservoir are being actively idered for introduction. As regards glacial sion, it is scientifically not correct to say that the ruction of reservoir will add to it. In face the ence of periglacial lakes close to glaciers, retard ate of glacial recession. The Tehri Dam reservoir, ver, is too far away from the glaciers to have any t, positive or negative, on the rate of glacial sion.

gether with afforestation, plans for improving ultural technology, fisheries, animal husbandry lso afoot.

Defence consideration

Tehri Dam is situated about 50 kms. from border and a question has been raised as to the gic advisability of setting up such a big dam so to the border. While strategic evaluation is the of other agencies, it may be stated here that the Salal and Bhakra dams are closer to national borders than the Tehri Dam. If such deration did not apply to these dams then this not apply to the Tehri dam also. Apart from this are two factors to be considered. First, that with evelopment of the Tehri Dam the road systems heir accessibility will improve substantially so eployment of men and material both strategic therwise, will become much easier. Secondly dering the developments in the available hardware for modern-day warfare and availability of missiles and long-range strike aircraft, enemy could penetrate much deeper into country, irrespective of whether the target is located 150 km or 300 km from the border. The answer to this situation is to organise an effective defence, capable of meeting such foolish adventures by any of our neighbours decisively rather than thinking about scuttling our development projects due to such fears.

Finally, the dovetailing of environmental preservation and development may be looked at. In the case of the Tehri Dam, this dovetailing will be attempted through the following means.

1. Development of animal husbandry, fisheries, and agriculture for the re-establishment of the economic base. Development of animal husbandry in the surrounding hills will be done using imported breeds and taking advantage of the sub-alpine climates and improvement in agricultural production will be attempted through advnced technologies such as hydrophonics.
2. Development of manufacturing bases through the development of non-polluting industries.
3. Extensive efforts at restoration of the environment in the upper catchment areas.

All the measures given above have been arrived at after considering various input factors such as possible changes in water quality, climatic considerations, present economic levels, aptitude and skills of the population etc.

As we have mentioned earlier, the Tehri Dam is just the focal point of a new vision of the Tehri Garhwal region as an economically strong and viable region. The benefits that will accrue to the nation will not only be through the waters of the Bhagirathi or through the transmission lines that will carry upto 2400 M.W. power but will also be from the productive activity of the population which had hitherto been denied the benefits of viable inputs and economic planning. □

S.P. Singh, Chairman and Managing Director, Tehri Hydro Development Corporation Limited, New Delhi.

Environment

Tehri— the dam of discontent

Sunderlal Bahuguna

THE OPPOSITION TO TEHRI high dam over Bhagirathi even after eighteen years, when it was first approved by the Planning Commission in 1972, sounds anti-development. The Project is being implemented with Soviet aid and will be the first highest-260.5 metres high– dam in India; which will utilise the Ganges water to generate 2,400 M.W. peaking power; irrigate 2.7 lakh hectare of land in Western U.P. and supply 300 cubic metres water to Delhi. These benefits make Tehri Dam Project an ambitious scheme and justify the claims of dam builders that Tehri Dam is the symbol of progress.

But before one crosses the bridge over Bhagirathi to enter Tehri town, one sees a signboard "Tehri Dam is the symbol of total destruction." It has been there since April 5, 1978 when U.P. Irrigation Department first started work on the river bed to construct the diversion tunnels– a preliminary step towards the construction of the dam. Even before this, opposition to the project was voiced by Rajmata Kamlendumati Shah in 1965. She represented Tehri-Garhwal in Lok Sabha. Rajmata's voice was solitary as most of the people thought the dam will bring prosperity to them. To begin with, the cost of the project was Rs. 126.8 crores (1967) and in those days when rupee was not devalued to the extent as today, it was regarded a very huge amount and everybody thought that it will open new avenues of employment in this poorest district of India– (Per capita income in Tehri-Garhwal was Rs. 84/- per annum according to Inter-State and Inter-District Income figures published by Indian Council of Applied Economic Research in 1962).

Soon the illusion was removed. The dam-reservoir would submerge the most fertile and flat land, which is scarce in the hills, where 17 persons live upon 1 hectare of agricultural land. The affected villagers organised themselves under the banner of Tehri Dam Affacted Peoples' Committee. The district units of all the political parties supported this demand. While the protest movement demanding rehabilitation of the affected people before starting any construction work connected with the dam was going on, the Project report leaked out. It stated that the dam was being constructed in the mid-Himalayan which was not only seismically very active, dam would be located on the epicentral tra with a dangerous tear fault (Mahar tear fault) a depth of 7.5 km. beneath the dam. This triggere movement and the people formed Anti-Tel Committee, which demanded abandonmen project. On June, 1978 when the Project au proceeded towards the site of diverson tu inaugurate the construction work, there v resistance.

Peoples' protest thereafter found ex through a petition to Parliament signed b persons, but Parliament was dissolved completing its term. Thereafter a Comm report on the environmental aspects of Te was appointed by Department of Scier Technology, which took six years. In the m Anti-Tehri Dam Committee filed a writ-petiti Supreme Court under Article 21 of the Con demanding the protection of the right to November 1985. The work on the project co which was accelerated in 1989, when th Government took it over and formed Teh Development Corporation for its implementation.

During these years debate on the s continued and several scientific studi suggested in this connection. The last effor Tehri Dam Committee was to demand a st Construction of Coffer dam till these studi conducted. When no heed was paid to it, the writer went on a fast on December 25 whi 'Call Attention Motion' to all concerned to ha look into this hazardous project.

Scientific su

The doubts regarding seismicity in Te area, though raised by common peopl supported by internationally reputed scien Prof. Harsha K. Gupta of Earth Science I Trivandrum (presently, Vice-Chancellor, University), Prof. K.S. Valdiya, Head of

ırtment, Kumaun University and Dr. Vinod Gaur, ctor, N.G.R.I. (presently, secretary, Deptt. of ın Development). Dr. Gaur says, "concern about afety of the proposed Tehri Dam arises from the ehension that the site may be unstable as it is ed within the severly deformed Himalayan belt h is the surface expression of one of the most getic geodynamic processes active today... ılayan belt is marked by prolific seismic activity. t major earthquakes of magnitudes 7.5, and ır on the Reichter scale and a great many smaller have occurred along the Himalayan front since great Assam earthquake of 1897 and numerous ale geomorphic evidences of recent rejuvenation been reported. So the argument goes: the ion of a large reservoir in a region which may ıdy be critically stressed, might induce rock-re; and if there is a dislocation near the dam, the netre thick sheet of water supported by it at an ıtion of 550 metres above sea level, would turn a veritable agent of widespread devastation n stream." (Earthquake Risk to Tehri Dam, Paper nod K. Gaur). Gaur had suggested measurements ep bore holes (500 m) which were never done.

this the dam builders say that the Russians have tructed Nurek Dam in a seismic zone, but Prof. ha K. Gupta, who has personally visited Nurek site remarks, "There can be no comparision in ı sciences. Even if a dam can withstand an hquake of 8-9 on the Reichter scale (there was 8-9 hter scale earthquake in Garhwal region in 1803, h destroyed 80 per cent houses in Srinagar, ıwal), how can they guarantee that the surrounding may not fall into the dam-reservoir and the Viont tragedy of 1963 in Italy is not repeated ?"

case there is dam failure, the water will flow at peed of 100 km² hour, says Prof. Shivaji Rao of University; the holy cities of Rishikesh and lwar downstream to Tehri Dam will be wiped n 57 and 69 minutes. The water will spread upto ut and Ghaziabad in the vicinity of Delhi.

Siltation

agirathi is a river which flows with heavy silt. er– which has been receding at the rate of 15 es a year. Long term studies about the rate of ion are required because the life of dam nds upon it but in the case of Tehri Dam Project mptroller and Auditor General in his report of 87 on Tehri Dam says, "when the project report e Tehri Dam was prepared and submitted for ion in 1969, no reliable data was available ding the deposition of silt in the reservoir" Silt data were collected at only one station during to 1978 and 1981, and later 1982 to 1985. Later, the ote Sensing Application Centre in Lucknow, h had been asked by the project authorities to the catchment area and calculate sedimentation stated in its report (November 1989) to the aisal Committee that it did not have adequate to calculate the sedimentation rate as yet.

According to Tehri Dam Project authorities, the life of the dam will be 100 years, but Dr. Vijaya Paranjpey, who has done the cost–benefit analysis study of the Project for Indian National Trust of Art and Cultural Heritage, puts it to around 60 years. But according to Shri S.P. Nautiyal, Ex-Director General, Geological Survey of India, "the life of the Tehri reservoir may turn out to be only 30-40 years instead of 100 years as assumed."

The problem of sedimentation is aggravated by the fact that a significant proportion of the catchment area is covered by glaciers and moraine which are both unpredictable and difficult to stabilize. There have been historical evidences, when massive landslides in the upper catchment areas of Bhagirathi blocked the river for a few hours and created havoc downstream. These were: in 1939 in Sera, which blocked Jalkur, a tributary of Bhagirathi, in 1959 in Dabrani and in 1978 Kanodiagad. Even earlier, the blockade of the river about 30 Kms. downstream of Gangotri near Jbala created a 10 km. long lake upto Jangla. Prof. K.S. Valdiya, an authority on Himalayan geology, has brought to light the facts about geological movements in the region where middle and the higher Himalayas meet. He has again drawn attention the accelarated sedimentation due to the road building in the Himalayas. saying: Construction of roads disturbs the stability of the hill side, inflicts serious damage to the hydrologic system and removes the protective vegetal cover from the vulnerable slopes. .....The excavation of each kilometre stretch of the road requires removal of 40,000 to 80,000 m³ (average 60,000 m³) of debris. After the roads are constructed, they are ravaged recurringly during rains by landslides and rockfalls. The average rate of debris created in this process is 550 m³/km/year". Construction of large number of new roads and widening of the existing roads, was done for Tehri dam project.

Rehabilitation question

Tehri Dam project will uproot and disturb at least 1.25 lakh people. The number is 86,000 according to the estimates of economists, but there are a number of villages in the rim area of the reservoir, specially in Raika and Dharmandal patties, where hill-slopes are very fragile and will slide-down as soon the reservoir is filled. Then, there are a number of villages, whose residents depend upon Tehri town for their livelihood. There is no provision for the rehabilitation of these unfortunate people. Even for those, who have been mentioned as oustees, numbering about 9.800 rural and 3,500 urban families, there is no plan to rehabilitate them. Out of these 13,000 families, only a small fraction of about 1,800 have so far been rehabiliated. Most of these have been settled in Doon Valley and Pathari near Hardwar on marginal land. In hills, though per capita agricultural land is very little,

about .06 hect., it is supported by seven times more forest and pasture land. The hill villagers collect fuel and fodder and even some wild roots, tubers and vegetables. They get drinking and irrigation water from natural springs and rivers. In the new settlements they have been denied of these facilities.

Rehabilitation is not a physical process alone. Living in harmony with Nature, has developed naturally in the hills. They have their own methods of enjoyment and recreation, like Pandav dance. Now the community life is disturbed because the few oustees of Tehri Dam, who have so far been settled in the plains, live in different settlements.

The hill eco-system comprises hills and valleys. When valleys are inundated, this unique eco-system in which the highlanders developed the qualities of adventure, bravery, hardwork is destroyed. History bears evidence that men and women who developed these qualities in the hills, proved as gems among human beings. Some of these were Pt. Nain Singh, the first Victoria Coss winner, Havaldar Chandra Singh Garhwali, the hero of Peshawar and Shri Deo Suman, who sacrificed his life after 84 days fast in Tehri Jail for civil liberties. Bachendri Pal the first Indian lady who scaled Everest is also the product of hills.

Ganges is not an ordinary river, which may be treated as a great mass of water. She is the river of penance and inspiration. With the origin of the Ganges is connected the story of penance of Raja Bhagirath. This river is imbued with spiritual inspiration of many sages and saints—Tehri has been the place of penance and realization of the philosophy of Vedanta of Swami Ram Tirtha, who was a source of inspiration to millions of people. Damming Ganges in its region of origin is killing a living river, which, according to a resolution passed by International Conference on Ganges and Himalaya organised by United Nation's university at Mohonk "is an unique heritage of humankind and a source of spiritual inspiration."

Tehri Dam is publicized as a development project, because the modern man whose religion is economics has been taught to convert everything into cash! Creation of more and more material wealth has become the sole objective of development, but "much of our wealth is illusion. We have simply drawn from one account (the biosphere) to add to another (material wealth)".

Yes, Tehri Dam will provide irrigation to 2.7 lakh hectares of land in Western U.P. though in Western U.P. the percentage of irrigated land area is the highest. Besides irrigation from Ganges Canal, tube-wells also cater to their needs. The farmers will get canal water, but will be denied fertile top soil, which used to flow down to the plains during monsoon. This silt will be trapped in the dam. This silt fertilized the Indo-Gangetic plains and farmers got fresh soil each year. Now they will have to compensate it with chemical fertilizers. This, on the one hand, will be a drain on their resources and on the other hand will impoverish the soil. It will havi disastrous result in the long run. Water for irrigatior and drinking from Tehri Dam will not be avilable ir the middle of June, when it is most needed to irrigat paddy nurseries and sugar cane and to meet wate scarcity in Delhi, because the level of the reservoir i to be kept at the lowest as it is to be filled during th monsoon.

The only justification for Tehri Dam is th availability of peaking power. Peaking power can b obtained by replacing incandescent lamps wit fluorescent lamps all over the country. According to study made by Tata Energy Research Institute, thi change will, in ideal conditions, result in reducin the peak demand at the end use point by over 4,16 M.W. which in turn, will release 8,726 M.W. generatin capacity

In Tehri area itself 429 M.W. electricity can be generated from the 'run of river scheme' which has been suggested as alternative to Tehri Dam.

The construction of Tehri Dam cannot b considered in isolation to the development policy o the country in general and the Himalayan region ir particular. We need more energy for centralize system of production which in no case is suited to densely populated and democratic country lik India. Decentralized system of production alone ca provide employment to all and as such the order o priorities should be: human, animal, biogas, solar wind, tidal and hydel from 'run of the river scheme'

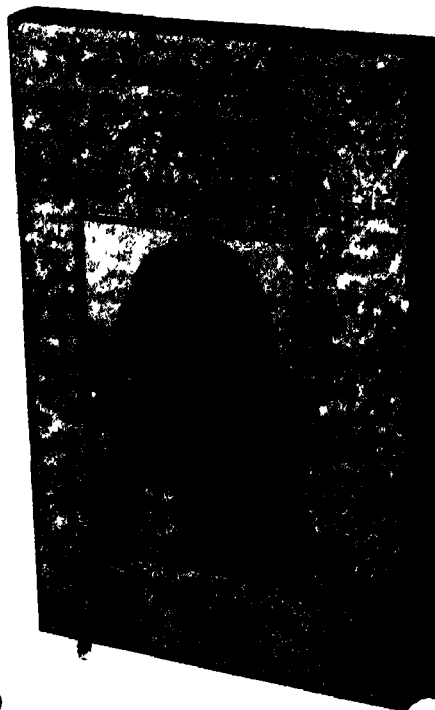
The life of dams is limited. It is high time to reasses the costs and benefits of the high dams. Beside shortening the lives of these projects due to siltation in many cases these have created new problems o salinity and water-logging. We have lost foreve fertile agricultural lands and dense forests whic were sub-merged following construction of dams. I other words, we have sacrificed a renewab resource for short-time economic gain. This is no sustainable and so does not fulfil the bas characterstic of development. The big dam are being constructed everywhere in tribal or hill areas. These people are being uprooted to provid power to big cities, industries and irrigation water t comparatively more prosperous areas. This i unethical. The locals are affected by sudden rise i prices of essential commodities. Their scar resources of water, fuel etc. are exploited leavin nothing for them.

But over and over again a question is asked shoul not the water-resources of Himalayas be utilised fo the benefit of the whole country? Yes, these should b utilised, but in a sustainable way, not by buildin temporary and disastrous dams like Tehri but b building permanent and prosperous dams. Thes will comprise a dense green cover over the hills o the Himalayas. The Himalayas due to deforestatio for last one century has become bald and lost capacit to hold the rain water, which flows down during th monsoon and to store this water high dams like Teh

e being constructed A massive programme of tree-
entation, not of commercial tree species like pines
hich are soil-depleter and water sucker but of trees
ring food, fodder, and fibre to make local
mmunities self-sufficient and provide raw materials
small scale village industries. Land use planning
d provision for irrigation will have to be done for this. Power should be generated even from small rivulets. Change in land use in the Himalayas will, in the long run, revive the lost green cover of the hill catchments of the rivers, which will ultimately minimise the difference in the flow of rivers during lean and peak seasons. The hills will also yield more fertile soil, which will enrich the plains.

Salient Features of Tehri Dam

Height of the dam :	260.5 m.
Type of the dam	: Rockfill earthdam
Submergence	: 112 villages and Tehri Township.
Catchment Area	: 6921.25 sq. km.
Power Generation (Installed capacity)	: 600 MW (1972) 1000 MW (1981) 2000 MW (1989) (including stage-I)
Irrigation	: 2.7 lakh ha.
Cost	Rs. 126.8 crores (1967) Rs. 197.9 crores (1977) Rs. 3,000 crores (1989).

Environment

Tehri Dam Project-A harbinger of prosperity

Arabinda Ghose

THE WORLD HAS NOT LOOKED back since the day more than a hundred years ago Michael Faraday demonstrated before the British Prime Minister the practical use of electricity, discovered, like many major inventions and discoveries, quite accidentally. In today's world, electricity consumption is an important parameter for assessing a country's progress.

Judged in this context, India ranks rather low in the list of countries in per capita consumption of power. While Canada tops the list with about 14000 kilowatts-hour (kwh) per year, the United States follows with more than 10,000 Kwh and Britain, the Soviet Union and Japan, each about 5000 Kwh a year. An Indian does not consume more than 200 kwh per year, ranking even behind China, where the per capita consumption is an estimated 325 kwh per year.

That India needs to produce more electricity desperately is not disputed, because no development and progress are possible without plentiful supply of electricity. We have generally three modes of producing power– by burning fossil fuel like coal, by using the heat generated in controlled fission of certain radioactive atoms like uranimum and plutonium, and by utilising the natural fall of large volume of water in the hills and mountains for turning turbines that produce electricity.

Over the years, more particularly since Independence, there has been a rapid increase in the construction of coal-based thermal power stations because such units can be set up within a period of four to five years. Also there is abundant coal reserves in the country even though the quality of this coal is poor. Nuclear power stations, which too are in a way only thermal power stations, are extremely complicated to set up and the disposal of the nuclear wastes is a hazardous problem limiting the growth of this form of energy production to modest limits.

Hydel system

Comparatively, the hydel sector has not received the requisite attention, mainly because of the impression that a hydro-electric project takes eight to ten years to produce power. The long gestation period is the only negative aspect of hydro generation.

However, hydel power production is a must for India for at least two major reasons. First, the country has almost limitless scope for producing hydro-electric power– mostly in the Himalayas-where the rivers carry enormous volumes of water through steep slopes. This provides the requisite heights (technically called the "head") to the falling water for generation of electricity. Secondly, hydel power is an essential ingredient of a stable power supply system because it provides the much needed "peaking" capacity of a grid.

As is well known, the demand for electricity in homes, offices, factories and fields (for irrigation) varies widely during the course of a day. It may be the lowest at midnight, and it may be the highest during the mornings and early evenings. The supply therefore has to match the demand, otherwise many problems like "tripping" of generators arise. Now the problem with both the thermal and nuclear stations is that once they commence burning coal or utilising the heat for producing steam-which ultimately rotates the turbines– they cannot be switched off at will. And if a thermal or nuclear station or one of its generators is shut down temporarily, it takes quite some time, often days, to re-start it. Thus while thermal stations can meet the "peaking" demands sometimes, they lose large amount of coal or heat generated in nuclear fission when the demand for power comes down. Coal will continue to burn even if no electricity is generated. This loss is inherent in a purely thermal system.

Hydel power comes to the rescue of the operators in such cases. While both thermal and nuclear power stations can produce what is called the "base load", hydel power can come to the aid of the system at the time of "peaking". Unlike in the thermal stations, you can shut off generation from hydel stations at will. When more power is required, you can release more water into the penstocks that carry the falling water to the turbine blades and when demand goes down the volume of water too can be restricted. It is because of this advantage of hydel power that experts have opined that India should ideally have a mix of thermal and hydro-power in the proportion of 60 and 40.

Yet another advantage of a hydel system is that when at night there is fall in demand and even after they are shut down or produce minimal power, the surplus power that the thermal stations continue to produce can be utilised to pump water that has already produced electricity back into the reservoir for re-use during the hours of "peaking". Although such pumping by itself is not an economic proposition, the utilisation of what would have been wastage gives the pumping system an advantage

It is in keeping with these objectives-of providing eaking" power and utilising otherwise useless ectricity for pumping back water into the reservoirs— at the Tehri Hydro electric project on the Bhagirathi ver in the Garhwal Himalayas 82 kilometres from shikesh been conceived. In its present form, the oject consists of a 260.5 metre-high earth and ckfill dam across the Bhagirathi below its nfluence with the Bhilangana near the present hri township. The dam will store a maximum of 50 lakh cubic metres of water in a reservoir 467 uare kilometres in area extending into both the agirathi and the Bhilangana valleys.

The impounded water will produce 1000 M.W. of wer (4 X 250 M.W.) at an underground power house ar the dam. Another underground power house ill produce 1000 M.W. (4 X 250 M.W) from the water mped back during off-peak hours as mentioned ove. The water released from the reservoir will be pounded again by a concrete dam at Koteshwar, 22 ometres downstream of the dam site. This will be own as the balancing reservoir for the Koteshwar del station where another 400 M.W. (4X 100 M.W. ll be produced, Besides, water released from the teshwar Dam will be utilised for augmenting igation by the existing Ganga canal systems by other 2.70 lakh hectares of land in Western Uttar adesh.

As of now, the estimated cost of the project is Rs. 08 crores, including the cost of providing a nsmission line from the project site to Meerut, m where power will be delivered to the Northern id.

Apart from the fact that the impounded water will nsiderably reduce the flood havoc caused by the nga every year, the impounded water will be source for a 300 cusec (cubic foot per second) nking water supply system for Delhi.

The Soviet Union has committed a 1000 million ible credit for the project and will also build the wer houses on a turn-key basis. They are also ociated with the designing of the dam and power uses.

Although at the beginning the Uttar Pradesh igation Department was in charge of implementing project, it is now being constructed by the Tehri-dro Development Corporation (THDC), a joint iture of the Central and Uttar Pradesh Governments h 75 per cent equity participation by the Centre l 25 per cent by the U.P. Government. This is for the wer component of the project. For the irrigation nponent, funding will be done entirely by the . Government. The cost of the power and igation components will be apportioned in the io of 80 and 20.

As of now, the Project authorities have completed r diversion tunnels each of 11 metres diameter. o of these tunnels divert the waters of the agirathi and two of the Bhilangana in order to provide a dry river bed for the construction of the dam. Since the flow of water in the Bhilangana river during this season is meagre, the project authorities have not made use of the two tunnels to divert its waters. The Bhagirathi tunnels alone are diverting, the combined flow of the two rivers of provide the dry bed, where the coffer dam is to be constructed during the current and the next season and the main dam thereafter. The coffer dam, which will divert the Bhagirathi waters into the tunnels even during the monsoons, will ultimately become part of the main dam.

Also partially completed are the four head race tunnels (which will carry the impounded water to the penstocks for the production of power) each of 8.5 metre diametre. The excavations have been completed and the lining works are in progress. The approach adits (tunnels) for the underground power house cavern have also been completed.

In fact, so good has been the progress since the THDC took over the project about a year ago that its Chairman and Managing Director S.P. Singh has drawn up a programme of commissioning the first unit of power by 1995, about three years ahead of the revised schedule which has surprised even the Soviet consultants who were not initially confident of the rate of progress.

The project authorities have drawn up elaborate rehabilitation programme for all persons to be affected by the construction of the dam and the infrastructure. The entire Tehri town will be submerged in the reservoir and attractive rehabiliation plans for the affected people have been drown up. Land has been offered at Dehradun, Rishikesh and the New Tehri Town, which has been built about three thousand feet higher from the present site, and which overlooks the area which will form the 46 square kilometre reservoir.

The compensation package of the oustees covers rural and urban sectors. In the rural sector, two acres of land each to landless labourers would be provided free of charge. There will be cash compensation of a minimum of Rs. 40,000. Besides, an ex-gratia payment of Rs. 12,000 per acre will be given for irrigated land. Two types of unirrigated land will fetch Rs. 6000 and Rs. 4000 per acre respectively. A minimum of Rs. 20,000 will be given as house compensation and Rs. 1000/-each will be given for seeds and fertilisers to each family which has been allotted land. Rs. 3000 will given for shifting of household effects. In addition to developed agricultural land, a residence plot of 200-square metre each will also be given.

For the urban oustees too, the package provides for plots of land at the New Tehri Town at nominal rates, Rs. 1000 to Rs. 1500 for moving household effects. A minimum of 60 square metres of plots will be given to each family at the New Tehri Town. The next higher

size of plot will be given if the existing land of the family measures more than 60 square metres.

Although initially the progress in rehabilitation has not been very satisfactory, THDC has now taken up the work in right earnest and it is felt that most of the works will be completed soon.

Controversial issues

As is well known, the Tehri Hydel Project is now embroiled in a controversy, mainly on the issues of environment and seismicity of the region where the dam is to be constructed. Many scientists and environmentalists have reaised several objection environmentalists have reaised several objections Geophysicist at the Project, Dr. Mikhailov had categorically stated that there would be no danger to the dam from earthquakes even of the strongest intensity of nine in the Reichter scale. The dam had been designed in a manner that can withstand these shocks. His colleague, Dr. Davidof, who had been associated with the Nurek Dam in Soviet Tadzikistan, also is of the opinion that the 260.50 metre-high Tehri Dam will be quite safe. The Nurek Dam, he has pointed out, is more than 300 metres high (the actual height is 315 metres) and had been constructed in a region the geology of which is worse than that of the Tehri Dam. In fact, the Soviet Union is constructing yet another dam, 335 metres high (the Rogun Dam) in the same region.

According to the THDC engineers, the Soviet engineers have fully endorsed the design of the dam made by Indian engineers, and they had done so only after they themselves examined the design and the site afresh. The only change they suggested was in respect of the material for the rockfill portion of the dam, a minor change aimed at increasing the stability of the dam in the event of an earthquake. They have also fully approved the length of the base of the dam– 1100 metres from the toe of the dam on the upstream side to the toe on the downstream side) The slopes of the dam on the two sides too have been approved by the Soviet engineers. Tehri Project authorities have left a free board (the height of the dam above the maximum reservoir level) of 9.5 metres, higher than the international standards so that in the event of rock soil falling into the reservoir as a result of any earthquake, the water level does not rise beyond the crest of the dam.

These engineers have also claimed that the life of the dam-based on the estimate of siltation rate-would be a minimum of 100 economic years and at least 163 years. They have also claimed that the benefit cost ratio for the irrigation component would be 3.5:1, higher than the norm fixed by the Planning Commission.

The THDC has earmarked more than Rs. 350 crores for treatment of the catchment area and for environmental improvement work.

The Tehri Dam, to be constructed at the only spot available in the Bhagirathi Valley for such a hydel plant, is a virtual goldmine for production of power. The project will bring in its wake various other developmental works too. For example, drinking water will be avaiable in all the areas through which the canals will pass.

The road from Rishikesh to Tehri is being widened by the Border Roads Organisation, which will make movement of traffic easy on this stretcn. There will be an increase in tourist traffic as a result. The Tehri Project authorities will construct a large hospital and schools too in the area. Afforestation will be of great help in the now barren hills, and apart from other things, the area will result in the development of industries too.

It has been suggested by many that instead of building a dam and a reservoir for producing power, the run-of-the river schemes would be of greater value. This is not the case as studies in this connection have showed that these projects will not produce more than 400 MW and will not help "peaking". Besides, they would be highly uneconomic propositions. The Tehri Dam proposes to store rain water for regulated use during the entire year which will provide peaking power, more plentiful supply of water to the hydel stations downstream and for irrigation.

In a world which has become quite conscious about ecology and environmental issues, it is but natural that there will be conflict in the views espoused by various sections of the people. However, it must be remembered that if one goes to the extreme, not only should no hydel plants be built in the Himalayas, but no other construction activities should take place in those areas. This is an entirely impractical proposition, and there has to be a compromise between development and environment. All that is required is sustainable development, or in other words, development without destruction. It is reasonable to assume that those who have planned and are implementing the Tehri hydel projects are not destroyers of nature. They too are aware of the environmental hazards of such projects. They too have children and ae concerned about leaving a safe earth for their children and humankind. ◻

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Environment

Sardar Sarovar Project: an overview

Sanat Mehta

UJARAT HAS ACHIEVED a higher rate of growth n many States in the country. But it still lags ind Haryana, Maharashtra and Punjab. Reason this is the poor resource base of Gujarat. The state limited water and irrigation, limited scope of nding cultivated area and far more limited basic rce for energy. Such a poor resource base is a ical factor for rapid development.

he economy of Gujarat has yet been moving ugh troughs and peaks in recent years. It been plagued by drought ten times in the last 28 s. During the recent three successive droughts distance transport of drinking water supplies as much as Rs. 150 to 200 per 1000 gallons. This is e than the cost of high-tech production of fresh er by 'REVERSE OSMOSIS', desalination of sea er

mongst the three regions of the State, viz. Gujarat, rashtra and Kutch, nearly 85% of surface water ilability is in Gujarat region. Even according to nfall data, North west part of Gujarat region, under category of scarce rainfall region. Thus, h data of rainfall and surface water clearly icate that most of the surface water reserves are ilable in a small geographical area between nedadbad and Umargaon.

n this situation, to have maximum utilisation of face water, the State spared no efforts and by now as built 79 major and medium irrigation schemes Saurashtra and 20 such schemes in Kutch. Even n during the recent drought, cattle of Saurashtra l Kutch were saved only by the waters of Ukai and lana. If these dams had been dry, it would have ulted in disaster.

aking even the case of underground water, arat has very limited ground water resources for purpose of irrigation. Large areas are inherently apable of yielding ground water economically. face wells forming the main source of irrigation. he state, serve mainly as a source of protective irriga-. Wells dry up in years of low rainfall. Thus, their ability is very low. In Saurashtra, the ground ter is confined to the cracks, fissures and inter-lded sedimentary layers between successive flaws he rocks. Moreover, fast depletion of water table is erved in Mehsana. Ahmedabad and Kodinar areas, where the intensity of tubewells and pump sets was high. In North Gujarat, recharging of the tubewells has already acquired urgency

Even in the field of minor irrigation, Gujarat has not spared any efforts. Present position of number of Government schemes completed, in progress and envisaged are as under:

	Major Medium	Minor (Nos.)	Tube Wells
1. Completed	77	4500	3500
2. In progress	88	922	400
3. Envisaged	308	2058	4000

All these efforts have resulted only in creating irrigation potential of about 16 lakh hectares out of which 11.55 lakh hectare is by way of major and medium schemes, 1.74 lakh hectare. by way of minor irrigation schemes and 2.70 lakh hectare by tubewells. This does not include irrigation done by private tubewells or wells.

In water scarce states like Gujarat, harnessing of the waters of river Narmada and diverting it to north Gujarat, Saurashtra and Kutch area is the only solution to meet the needs of agriculture and thirsty rural people. If this is not accomplished at the earliest, there is very possibility that vast areas of Gujarat except the area between Ahmedabad and Umargaon will remain devoid of development and will ultimately become arid. Neither the watershed nor other minor irrigation schemes nor deepening of village tanks during the last 10 drought years have been able to provide any long term relief. leave apart the solution.

Impact

Thus, the importance of Sardar Sarovar Narmada Project lies not in its going to be one of the rarest engineering feats, but because of its tremendous impact on the overall economy of Gujarat. It is not merely a big irrigation project, but a prestigious multipurpose project bestowing upon the people of Gujarat– nay even upon other adjoining States viz. Rajasthan, Madhya Pradesh and Maharashtra–in varying measures, its multi-pronged benefits by providing water not only for irrigation and power generation but also for drinking and industrial purposes.

This project, which is estimated to cost over Rs. 6400 crores, will on completion, provide irrigation facilities to about 18 lakh hectares of land and create installed capacity of power of 1450 MW. It will benefit about 25 lakh persons in 3340 villages of 62 talukas in 12 districts of Gujarat. Its unique feature is that 75% of its command area is at present suffering from frequent droughts. Besides this, 75,000 hectares of arid land of Barmer and Jhalore districts in Rajasthan will get benefit of irrigation. This project will also enable new industrial corridor to be developed around Narmada main canal and Ahmedabad–Delhi metre guage railway line and eastern highway. Besides boosting agricultural and industrial production, it will also fulfil the need of drinking water for 295 lakh persons residing in 131 towns and 4720 villages in Gujarat. The problem of domestic water supply to arid areas of Saurashtra and Kutch would thus be solved permanently.

Effects of delay

The project was conceived as back as in 1947, foundation of which was laid in April 1961. When solution to the problem relating to the project became almost impossible by negotiations between the concerned States, it was referred to Narmada Water Dispute Tribunal in 1969 under the River Water Disputes Act, 1956. The height of dam, availability of total water, allocation of water and power between the States, seismic effect on the project, submergence of agricultural, forest lands, norms and responsibility of rehabilitation and allocation of water for non-agricultural use, these and other issues were discussed. In the, Tribunal, claims were contested and debated for full ten years and the Tribunal gave its final award in 1979. Again, before the project work could start in full swing, it was delayed because of clearance under Forest Conservation Act, 1980 till October 1988.

Inspite of close examination by the Tribunal and long debates in the press and at various official and non-official fora, it is surprising and shocking that fresh demand is now being made for debate and reconsideration of the project for various reasons.

One must not forget the cost of this project, which was estimated to be Rs. 4240 crores at 1981-82 price level has now reached the figure of Rs. 6406 crores at 1986-87 price level. This has added a burden of nearly Rs. 2,100 crores on the people of Gujarat.

If one adds this figure of Rs. 2,400 crores to the cost of relief of Rs. 1500 crores, which the State spent in recent drought years and to the loss of agricultural production of Rs. 5000 crores, the total loss would be to the tune of Rs. 8,900 crores. Can we afford such luxury ?

Main grounds on which efforts for stopping or delaying this much delayed multipurpose project are:

(a) Resettlement and Rehabilitation
(b) Environmental and
(c) Economic

Much of the arguments on the three grounds i[s] based either on misinformation or illinformation [If] details given in the following paragraphs are examin[ed] dispassionately, it will convince any rational pers[on] that this project is perhaps the only one in the coun[try] which falls under the category of 'much investigat[ed] but least implemented'.

Resettleme[nt]

It is an accepted fact that the policy of R[&R] announced by Gujarat is most liberal. It is the fi[rst] time in the country that the landless and encroach[ers] of forest land will get 2ha. of land in command area [It] is the first time that their children of 18 years [or] more have been treated as a separate family for [the] purpose of benefits. In addition they are also bei[ng] provided input grant of Rs. 5000 in kind for th[eir] agricultural development.

Gujarat has already settled 800 project affect[ed] persons (PAPS) from Gujarat and 159 PAPS fr[om] Maharashtra. A detailed plan for current year [of] Gujarat is prepared. The land availability is [as] follows:

		Hecta[res]
(a)	Land purchased before Dec. 1987	916
(b)	Land price negotiated by Land Purchase Committee (LPC)	3306
(c)	Cases ready for submission in the LPC	2259
(d)	Land where offers have been received but proposals are under investigation.	1091

All these lands are neither forest nor waste; th[ey] are already under cultivation and is in comma[nd] area. Land is allotted only after selection by PAPs. [But] one should not forget that before allotment, [the] authorities have to first negotiate, remeasu[re,] resurvey and plot it in 2 hectare size. Once thi[s is] done, authorties have to find out the burden, if a[ny] on this land from nationalised and co-operative ba[nks] before documentation. Even at present, 1455 acre[s of] land duly measured and plotted is ready. In [the] current year by now 472 documents are register[ed].

In addition to the land, 800 families are gi[ven] residential plots. Besides, other facilities are [also] provided. Amongst them, mention may be made [of] subsistence allowance, subsidy for bullocks, bull[ock] carts, civic amenities and insurance cover.

In view of Government lands found unsuitabl[e by] PAPs, Gujarat has started showing them private la[nd] for which offers were received. By March 1[990] Gujarat has shown 2400 hectare of private land [in] command area to PAPS of M.P.

The Khadi Commission has recently agreed [to] provide employment to one member of the famil[y in] Khadi and village industries. 3500 PAPs are likel[y to] be covered under the scheme.

nent question would be: in how many other ..s, such liberal approach to R&R was made? In ..the projects forest lands were given, that too .. owners. Lands in command area were never ..o landless PAPs. One must bear in mind that ..ount required to purchase these private lands ..ss of the amount of land compensation earned ..is given exgratia by the project. This means, in ..e of landless and encroachers, full amount of ..se price of 2 hectare is given by the project.

Environment

..mising adverse impacts on the ecosystem due ..ementation of SSP has been one of the foremost ..ves in the planning process right from the ..ges of the project. A systematic impact assessment ..dertaken on scientific lines with assistance of ..of academicians. The study area covered the ..e and its immediate surroundings. Despite the .. scope of the study, outcome has been very .. to plan effectively environmental measures .. entire project.

..does not know, which project in the country ..ok such studies during the time of the project ..g. Even then some environmentalists are ..very rigid attitude. But we must remember ..at the Brundtland Commission on environment ..velopment has warned us: 'world in which .. is endemic will always be prone to ecological ..er catastrophes'.

..te of very clearcut approach of sustainable ..ment, many environmentalists and critics of .. have been consistently quoting the figures of ..environment in crores and then raising the ..n about benefit-cost ratio. Doubts have been ..bout the assessment of environment losses. It ..n alleged that these losses are about Rs. 33,000 ..on the Narmada Sagar Project and Rs. 7,000 ..n Sardar Sarover Project, aggregating to about ..00 crores. It is also alleged that it is impossible ..er of the projects to satisfy the Planning ..ssion's benefit- cost ratio stipulation of 1.50:

..lly, all these losses have been assessed by the ..ment and Forest Department of Govt. of India ..riod of 50 years and they are based on an ad .. of Rs. 126.7 lakh/Ha. of full stock of forest with .. of 1.0. In fact, the density of forest coming ..ubmergence in SSP is about 0.4; while for that ..nada Sagar is about 0.48. The losses would, ..re, actually work out to about Rs. 6100 crores .. and Rs. 25,306 crores for Narmada Sagar ..for 50 years. Thus, it would hardly need to be ..t the environmental losses on which criticism ..d are totally hypothetical and exaggerated.

..entally, it may also have to be borne in mind ..n such areas as are under sparse vegetal cover or even barren are classified as forest areas because of their status of the land use category as shown in the records. This quite often leads to erroneous conclusions based on the assumption that areas classified as forests are dense and rich forests. According to one interesting incident reported, a few hundred hectares of forest land allotted to the National Fertilizers Ltd. by the Government of M.P. in 1984, had only one tree on the land, which has been preserved by the Company as a monument.

Besides, the critics conveniently do not mention irrigation and power benefits, which will accrue from these projects, estimated by the same Department. Irrigation and power benefits are estimated at Rs. 46,916 crores and 11,336 crores respectively from SSP as worked out by the Department.

Together with additional income in agriculture sector of Rs. 10,500 crores, the total benefits due to the project would work out to Rs. 68,750 crores, which would far outweigh the environment losses of Rs. 31,470 crores.

Economic appraisal

Economic appraisal of the projects has been conducted by the independent agency viz. the Tata Consultancy Services in 1981-82. They have worked out the benefit-cost ratio of 1.84. This project has been further appraised by the World Bank in 1985 at the time of sanctioning World Bank credit and by the Planning Commission at the time of giving clearance to the project further calculating the benefit cost ratio of 1.999

SSP has been attacked even on various economic grounds. Someone has mentioned it as 'most expensive irrigation project ever undertaken in our development history'. Even doubt has been raised about the capacity of Gujarat to match World Banks' investment. These doubts are based on half-baked information. Total project cost (all inclusive) is Rs. 4240 crores at 1981-82 price level and now as per final approval document of Planning Commission, it is Rs. 6,406. It had to pass through the scrutiny all the States, Central Water Commission and Ministry of Water Resources. As per this, estimated cost of the project chargeable to irrigation component in Gujarat is only Rs. 4991 crores and not Rs. 9148 or Rs. 8196 crores as mentioned by some critics. This approval by Planning Commission was given on 5.10.1988. As per NWDT Award, the share of beneficiary states is estimated to be Rs. 1500 crores. Thus, share of Gujarat will be Rs. 4904 crores or so.

The World Bank has agreed to finance $ 450 millions (Rs. 670 crores) at 9.75% interest; while OECF of Japan has agreed to give Yen credit equivalent to Rs. 150 crores for turbo alternators.

Government of Gujarat has so far spent more than Rs. 700 crores on the project. This clearly indicates that Gujarat will have to raise nearly Rs. 3400 crores or

(Contd. on page 34)

Environment

Sardar Sarovar Project: Thesis, anti-thesis and synthesis

Dr. Vidyut Joshi

THE WHOLE TRUTH ABOUT Sardar Sarovar Project-and for any other such development project-is neither with the planners and managers of the project, nor with the critics of the project. Both the parties hold only the part truths and it is the dialectical relationship between the two that brings the whole truth to the forefront. It is in the interest of this whole truth that a dialogue between them should go on. In the early phase of development, when studied criticism of our projects was not available, such projects have brought development so far as absolute development without bringing deprivation either also brought deprivation so far as man-man and man- nature relationships are concerned. It is not that the critics do not want development, they want development without bringing deprivation either among human beings or in nature.

The thesis

Western India is the water scarce region in the country. It has an erratic monsoon spread over thirty days. Narmada, Tapti and Mahi are the only perennial rivers. Every fourth year is a drought year in South Rajasthan, Kachchha, Saurashtra and North Gujarat. Unlike North India, the rivers do not get flooded in summer and unlike southern and eastern India, there are no two monsoon seasons in this western part. This sort of water scarcity is there since centuries. In olden times people from Marwad, Kachchha, Saurashtra and North Gujarat migrated to Bombay and prospered there, leaving their natives high and dry.

So far as Gujarat is concerned, all the existing irrigation schemes provide water to only 18 lakh hectares or around 18 per cent of the land under irrigation. Narmada, the only untapped river so far, would provide irrigation to 17.92 lakh hectares of land in 3244 villages of 12 districts. Thus the project would benefit one fifth of the rural population of the State and would cover 17% of land of Gujarat. 72% of the command area is drought prone. 131 towns and cities and 4720 villages will have the benefit of drinking water. Total power generation will be 1450 mw. At present the plans are afoot for generating power through canal water. If it is completed the power generation would be much more. When Sardar Sarovar Project is complete, the annual increase in the agricultural income will be of Rs. 900 crores, the increase in the income through electricity will be Rs. 400 crores and the increase in the income through the supply of water will be Rs. 100 crores. Thus Gujarat will have the total increase in its income to the tune of Rs. 1400 crores annually. Over and above this there will be increase in the income through fishing. Thus, Gujarat will have an estimated daily increase of Rs. 4 crores. As against this, as much delay in implementation as it occurs, the total cost of the project will rise.

If Narmada Project is not implemented in Gujarat, the future development would continue to be concentrated in these 60 talukas in Ahmedabad-Vapi rail-road corridor where social benefit cost ratio has become unfavourable, because of the ecological imbalance and environmental deterioration. The unfavourable socio-economic cost ratio is because of overuse, misuse and flogging of the limited natural resources like water and land.

The Private benefit cost ratio in the rail-road corridor is still favourable due to ever increasing state incentives and subsidies in the short run. One does not know how long it will continue to remain favourable. The present nature of development in the rail-road corridor has potential of several Bhopal type tragedies which could turn even this limited short-run favourable private benefit cost ratio into a nightmare and disastrous high social costs.

In view of low and erratic rain fall, limited surface and ground water concentrated in South and Central Gujarat and limited irrigation, Gujarat agriculture is highly susceptible to drought and famine. The droughts of 1984, 1985, 1986 and 1987 have very clearly established the need to augment the water resources of Gujarat.

The impact of 1987 drought was extremely severe. It affected 77% of Gujarat population and 71% of cropped area in more than 15,000 villages. The recurring and consecutive droughts can be eliminated only by augmenting the water resources of Gujarat.

In this debate and heat, everybody has forgotten

hat Rajasthan has also very high stakes in Narmada Project, because it is going to provide water to its highly water deficient areas of Barmer and Jalore districts.

Gujarat is a state with water scarcity. Between 1984 and 1987 Gujarat has faced four consecutive droughts. The Government has spent Rs. 1500 crores on the relief works undertaken to face drought. On account of this drought, the loss in agriculture was around Rs. 000 crores. Had there been no hindrances against Sardar Sarovar Project, this amount could have very well been sufficient to complete the project and Gujarat would not have been put into the conditions of facing the worst drought in the century. After the completion of the Sardar Sarovar Project in the areas of Gujarat which are water scarcity areas, the water level will rise, and this would result into water filtering down into those wells and ponds that dry up in the time of drought. The trees will not dry up and the cattle and birds would not face the difficulty of water-scarcity.

Speaking generally for India and particularly for Gujarat, the problem is not about the choice between small dam and a big dam. Here, less than one fourth of the land receive irrigation with difficulties and about one third Talukas constandtly suffer from water scarcity. Dam, check dam, village ponds, farm pond and all other possible methods are to be explored to enable farmers to take three crops a year. And when efforts are undertaken towards these ends, if some technical or human problems arise, such problems are to be solved through still better planning.

The anti-thesis

When Narmada has such a huge potential for the development of the region, why are we not having unanimous opinion on the project? Some issues have been raised, time and again, against Sardar Sarovar in particular and Narmada Valley projects in general. On one hand these issues have stopped early implementation of the project, while on the other it has helped in putting the project on more rigorous and scientific grounds. Following issues have been raised by concerned academicians and activists:

1. The ecology will suffer. Invaluable forests will be destroyed because of submergence of forest lands coming under the project. The wild-life and birds etc. living in these forests would face extinction.
2. The possibility of an earthquake would be more in view of such a large dam.
3. There would be deposits of silt in the base of the dam and within few years, the dam would be useless for the supply of huge quantum of water. While in the command area, there would be water-logging because of canal-irrigation and salinity of the land near the sea would rise to a higher level. All such land would become useless for agriculture.
4. The stagnant waters of the reservoir would spread water-borne diseases in adjoining areas.
5. Generally in such big dams initially the cost is under-estimated and the advantages are blown out of proportion. In Sardar Sarovar too, the cost would rise and power and irrigation which are claimed to accrue, would in fact not be available in the proportion claimed.
6. The people in the areas under sumbergence and particularly the tribals would lose their lands and there will be no proper rehabilitation for them.
7. All these issues are reduced to the debate of big Vs. small dams. The issues raised above are raised on the basis of performance of big dams. The Public Accounts Committee (1982-83) of Lok Sabha says, "Since the last 15-20 years, eight big projects have remained incomplete and some of them will not be completed even at the end of the Sixth Plan. The cost of some 32 big projects reach upto 500 per cent more than the earlier estimates. In fact, not a single project has either been completed within the defined time limit nor within the estimated cost."

The experience of the past also indicates that the waters for irrigation do not reach as claimed in the beginning. Taking the example of Kakarapar Project of Gujarat itself, from 1958 to 1972, the use of water was upto 18 to 32 per cent of the potential. According to one estimate, 44 per cent of water remains unutilized out of the total potential water resources of irrigation schemes in Gujarat. This unutilized water seeps down towards the seas. Hence the salinity coming to the surface of land increases. This has happened to Olpad taluka of Surat district. In Mater taluka, many lands turned saline becuase of Mahi canal and the agriculture suffered.

Inspired by such bad and/or low performances of big dams, some academicians and activists have raised doubts on big technology itself. But we should remember that every technology improve on the basis of past experiences. Moreover, technology is not neutral. It works the way political and economic context allow it to work.

The synthesis

Development is a two way process. It is not only to be injected from above. It also should emerge from below. People are a concerned party, directly affected from this development. Hence, they should be involved in planning and execution of development process.

There are two types of critics of Sardar Sarovar Project Those environmentalists who believe in maintaining classical, pre-industrial man-nature balance and those activists who believe in 'small is

beautiful' oppose large scale of Sardar Sarovar Project on the ground of issues mentioned above. They believe in many small dams and water-shed management instead of Sardar Sarovar. They have yet to come out with a plan of so many small dams having better submergence ratio and cost-benefit ratio than Sardar Sarovar.

Second group of critics is not against big dam as suh. They have seen the magnitude of water-crisis in this region and they know that there is no alter-native to Sardar Sarovar Project. What they demand are better planning and implementation that would take care of the issues mentioned above.

The issues raised have brought a sort of concern and consciousness on part of the planners. The pressure built by critics has yielded fruits and planning at Sardar Sarovar has improved as compared to other big irrigation projects. Let us see some facts:

The first issue is that of ecology. According to the present estimates, Gujarat, Maharashtra and Madhya Pradesh will lose 42, 061 hectares of forest land because of submergence. In this land, thick natural forests are in small proportion. The present writer travelled in all the villages of Gujarat and Maharashtra facing submergence, and has nowhere seen the thick forests. The said forests have been cut off even before the Sardar Sarovar Project started. Hence, the problem of depletion of forests is inspite of Narmada project. It started with Britishers. By introducing the Forest Act of 1864, the British government considered the forests as belonging to the government and gave contracts to the big merchants for cutting forests. At the time of our independence, many of our forests were depeleted. Even to this date, there is an illict felling of 1.5 million hectares of forests every year. It is worthwhile if the forests could be re-grown and this trend of felling trees could be reversed. As a part of the conditions against which the sanction has been given to Sardar Sarovar Project, the government has planned afforestation. Sardar Sarovar Nigam has got a study of afforestation prepared by Shri Zaveri, and has undertaken the afforestation programme spanning through three years at the cost of Rs. 4.64 crores. It is of course necessary here to sound a note of caution: This work cannot be done only by the Forest Department. If we want to make our forests lush green once again involvement of people is necessary. Those who want to see that Sarovar Project is not bogged down on the issue of afforestation, should undertake social forestry, village forestry, forestry on fallow lands and agro-forestry programmes through different popular and voluntary organisation.

So far as wild life is concerned it has also become almost extinct, in submerging villages, in spite of and before Sardar Sarovar Project. However Gujarat government has planned a sanctuary for Bear just near the site of Sardar Sarovar Project. During the last four years of drought, the Nal Sarovar (Lake) dried up and the migratory birds did not come. At Velavadar sanctuary tankers of water were sent to save deers (Kaliyars). With the main canal of Narmada project the scarcity of water at both the places mentioned above would be removed. In other words, Sardar Sarovar Project would prove to be a boon to the wildlife.

The second issue of opposition to the project pertains to the possibility of an earthquake. The area of the dam is seismic-prone. The Earthquake Engineering Department of Roorkee University has carried out a research work on this issue and the recommendations made by them are utilized in preparing the design of the dam. After that the World Bank appointed a Review Panel. The panel's seismic expert Prof. Ray Clough has expressed satisfaction about the steps taken to save the dam against the possibility of an earthquake. The rifts in the base of, the Sarovar are filled up with a special process. Hence even if there is an earthquake, (which is only a theoretical possibility) the dam will not be damaged.

Flow irrigation system always supplied excess water. This water is wasted. After some years of such irrigation, the beds of the fields become moisturous or water-logged and become incapable of generating dry heat which is necessary for the growth of the crop. Flow irrigation in coastal areas also tend to bring the salination lying under the ground to the surface. Then the whole of the area becomes saline. Particularly the black cotton soil of Baroda and Broach districts are more likely to be damaged. This factor has been taken care of in the planning of Sardar Sarovar project. If there is flow irrigation the farmers tend to give more than necessary water to their crops. If water is supplied through volumetrics system and if the farmers are asked to pay commercial rates, the farmers then would give their crops only necessary quantum of water. If this could be arranged, there would be no water-logging and the tail fields also would not be deprived of water supply. So far the instances noted relate to salinization of lands near the seas where the field channels were released on the lands. However, in Sardar Sarovar Project, when the fields are provided with measured water, the still remaining water would flow out through drainage. Therefore there would be no problem of turning the lands into saline lands near the sea. It is the first time in India that in the planning of Narmada, proper solutions have been found after the studies of underground water and drainage.

At present even another thinking is there about the system of irrigation and possible reforms in it. In flow irrigation, we supply water to the roots of the plant but over and above that the water flows on the

empty ground surface between the two plants. This causes wastage of water and further the grass that grows up on the irrigated surface, causes the problem of over-weeding. Hence, if we opt for drip system of irrigation, instead of the system of flow irrigation at field level, water would reach only to plant roots This drip system would save 70% of water quantum. Drip irrigation is ideal for saving the black cotton soil and the land near sea coast from being damaged. The drip system also yields more crop. Within one year, even the cost of pipes could be met with an apt drip design.

So far, the farmers of Gujarat are habituated to the flow system of irrigation which also is comparatively cheaper. Now the work ahead is to see that these attitudes of the farmers are not only turned towards the drip systems of irrigation but also to the system of volumatrics. If such a task is undertaken by the Government, it may fail. So, here also the question of people's participation becomes crucial. Activists and NGOs should mobilise farmers' support to bring these changes. It would be better that farmers on their own demand not only such changes but also take away the task of water distribution from engineers and manage the same through water co-operatives. Let it be remembered that the more the involvement and the participation of the people, earlier the completion of the Narmada Project. It should also be remebered that such kind of participation will not come to the people on platter, it is for the people to have such participation on their own.

The experience so far is that the silt coming from the upstream areas get deposited in the base of the dam. The result is that the reservoir grows shallow and its capacity to retain water decreases. This problem also was taken care of while planning the dam. Narmada mainly passes through the rocky area. Therefore, there is less possibility of the silt-coming down the flow of the river. However, the rivulets and small rivers do bring along with them the silt when these rivulets and small rivers meet Narmada. Therefore, in order to see that this silt does not log up into Sardar Sarovar, it has been decided to have 'Catchment Area Treatment'. The very idea of catchment area treatment has been conceived for the first time at Sardar Sarovar. Small rivers and rivulets will be 'plugged' to prevent silt coming into the Narmada. Over and about this, there will be plantation of trees in the Catchment Area and there will be less erosion of the land. Thus, the possibility of the Sardar Sarovar becoming shallow through silting is much less.

There have been studies about health conditions as part of the ecology and environment studies. Planning has been done to take care against the water borne diseases. However, it should be noted that the more responsible factor for the diseases is not the stagnant water. It is the lack of water or careless use of water that is more responsible for spread of water-borne diseases. There has been planning of taking precautionary measures against Malaria and Elephantiasis and other such water borne diseases. There has also been a study about the effects on the health of the cattle in the irrigated (piyat) areas. Even the financial provisions are made for the health of the cattle.

The cost benefit ratio at Sardar Sarovar is more favourable, not only compared to big projects but also compared to small dam projects. This subject is very complex, the experts on the cost-benefit ratio say that the experts on the cost-benefit ratio, say that the apparent apparent benefits like incomes from agriculture and power generation are only apparent and there are other indirect benefits which could hardly be measured. In the three years of drought, the Government spent Rs. 1,500 crores on the relief works, and there was a loss of Rs. 5000 crores in agriculture. Had there been Narmada Project we could have saved a major portion of these Rs. 6500 crores. Can we take this figure into the calculation of benefits ?

The issue of rehabilitation is not a technical issue. It is a complex human problem. Prior to Sardar Sarovar, there was either no rehabilitation or only *ad hoc* and isolated measures were taken. It is for the first time in India that the most liberal policy for rehabilitation gradually emerged at Sardar Sarovar. Several agencies, including the World Bank, Environmentalists, Activists, Narmada Water Dispute Tribunal and legal activists, have played significant role in this sphere. Now every adult oustee (P.A.P) will get a minimum five acres of land (with assured irrigation) inspite of his land holding status. There are several other liberal provisions. Even severe critics of Sardar Sarovar agree that this is the best rehabilitation policy. So far as the problem of implementation is concerned, all concerned will have to act as watch dog. Some activist agencies will have to participate in the rehabilitation programme of the Government of Gujarat and adopt one or two rehabilitated villages for development.

The quantum of land and number of people facing submergence at Sardar Sarovar are as under :

Unit	*Gujarat*	*Maharashtra*	*Madhya Pradesh*	*Total*
Villages	19	36	182	237
Families	3322	1357	7500	12180
Population	10593	11000	45000	66593
Forest Land (in Acres)	11168	8541	6756	26465
Irrigation land (in Acres)	4634	3751	19464	27849
Other Land (in Acres)	2639	3930	25205	31774
Total Land (In Acres)	*18441*	*16222*	*51425*	*86088*

The figures shown above indicate that the total 86,088 acres of land will come under submergence. As against this , about 45 lakhs acres of land will receive irrigation water. Thus the submerged area will amount to 1.90% of the land to be irrigated. On the other hand, 66593 persons are to be ousted and rehabilitated. An amount of Rs. 316 crores has been

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Need for fresh thinking on Environmental issues

Anjana Chatterjee

The author makes an impassioned plea for a balanced evaluation of the environmental issues and not being carried away by the outcry of developed nations. There is need for stopping harassment of people and project proposals in the name of environmental protection. There should be sensible environment policies based on our own resources and technology ensuring hygienic living and working conditions, safety against industrial hazards, afforestation and authentic information to the masses on environment.

THE PURPOSE OF THIS paper is to highlight the need for balanced evaluation of the environmental issues in keeping with regional and national priorities instead of being pressurised by developed countries to adopt common measures. The Third World countries with their own resources and technology must pay attention to the priority areas with regard to the environment which require immediate action.

In the present century, environmental degradation has emerged as a major global concern for human survival. A large number of international and global organisations with the collective wisdom of scientists, economists and planners have come up to settle the environmental issues confronting the nations and the physical world. The environmental crisis has convinced the world to use technology and resources to repair the damage already done to our environment and also to patent substitutes for certain harmful chemicals in order to protect and preserve nature and natural resources.

We cannot ignore the fact that what causes many of the environment effects will always remain uncertain as most studies of the green-house effect and that of climate change cannot be tested conclusively. In next next quarter century period more people will die fro road accidents, AIDS, earthquakes/floods a smoking cigarettes than from the hole in the Ozo layer. Perhaps the Sahel droughts cause t destruction of Amazon and the disastrous flood Bangladesh is the impact of global warming on t climate. But it is questionnable whether starvation caused by deforestation or drowning or coal burni on the other side of the world.

In a recent conference on Environment, the Briti Prime Minister rightly remarked that "goal of stea progress could be persued without disturbing t fundamental equilibrium of the world's atmosphe and its living systems".

Recent outcry on "global warming" has rais public concern over depletion of Ozone layer. It believed that the use of various chemicals a burning of fossil fuels had punctured a hole in t Ozone layer, forty kilometers above the earth Antarctica which allows ultraviolet rays to penetr and heat up the atmosphere. This was ultimat brought about by what is popularly known as "Glol Greenhouse Effect" The major cause of Ozo depletion appears to be the presence of chlorine g which converts Ozone into oxygen molecules. One the sources of the chlorine in atmosphere that cau concern are compounds known as Chloroflurocarbo (CFCs). CFCs are claimed to contribute to t greenhouse effects being one of the gases and wa vapour which reflect back terrestrial radiati warming the earth's surface.

According to the World Resource Institute, ab 49 per cent of the total man made contribution to t greenhouse effect is Carbondioxide (CO_2) followed methane 18 per cent, CFCs 14 per cent and nitr oxide 6 per cent. The evidence reveals that nitr oxide is increasing at the rate of 0.25% a year wh CO_2 will be 10 billion tonnes a year by 2010 (addi about 5.1 billion tonnes every year). It is metha which alone accounts for about one eighth of the h trapping gases of the greenhouse effect and is ris at 1 per cent a year, i.e. two and a half times fa than carbondioxide.

With the help of mass media and other world-wi propaganda, CFCs seem to have been singled out

most harmful as the depletion of the Ozone layer is believed to be caused by Chlorine from CFCs and bromine probably from halons (Chlorofluorobromine compounds). While some scientists believe that the depletion of Ozone layer is a natural phenomenon, others say it is due to air pollution. However, in 1987, the United Nations agreed to hold CFCs production world-wide at 1986 levels and then phase out by 1998. Public concern over depletion of the Ozone layer initiated a conference in Montreal in September 1987, known as Montreal Protocol which decided that the use of such chemicals would be ended by 2000 A.D. The Protocol was initially signed by 48 industrialised countries and came into force since January 1, 1989. China and India opposed such a strict phase out treaty since the involvement of the poorer countries in the substance is much smaller than the industrialised nations. United States alone accounts for 37 per cent of world's CFC consumption, EEC 35 per cent, Japan 11 per cent and Asia, Africa and Latin America consumed 5 per cent followed by Eastern Bloc which accounted for the remainder. The developed countries, under the Treaty, are permitted a per capita CFC consumption of 500 gms. At present, India's total consumption of CFC per year is about 7000 tonnes against world's consumption of more than 1 million tonnes. The application of CFCs to Indian industry in terms of percentage could be seen in the following table:

Status of CFCs in India	*(in tonnes)*
Production	*7,000*
Capacity	*19,000*
Application	(in % to total production)
Refrigeration & Airconditioning	80
Aerosol	10
Foam	5
Miscellaneous	5

Douglas G Cogan of the Investor Responsibility Research Centre, Washington says "Virtually every American household, most of the nation's transportation fleet and 375,000 business locations will experience withdrawal symptoms as the nation weans itself of its daily dependance on these chemicals. Some of the CFCs substitutes would be so expensive that costs would automatically increase for a wide range of consumer products and services. Also alternatives to CFCs may not be sufficiently efficient to operate as those of CFCs resulting in higher energy consumption.

In order to have a substitute for a chemical used as a solvent to clean microelectronic chips and medical products, DuPont of U.S. discovered a new chemical in 1987, which was later realised to be detrimental to the reproductive organs of male rats.

In fact, the original CFC formulation is very difficu to replace. Replacement chemicals do not quite d the same job. For instance, in 1970s DuPont produce a small amount of the HFCs for a standard refrigerato After a decade the refrigerator was dismantled by th Company. Now again DuPont is setting up a plant t produce a chemical without chlorine known a fluorinated hydrocarbon (HFC).

There is a catch-22 effect for many of th replacements for CFCs. When CFCs foam insulatio used in refrigerated trucks is replaced with insulatio made from fibreglass, the result is less usable storag space which tends to take more trucks and use mor hydrocarbons which ultimately adds to smog level None of the alternatives is cheaper !

However, American Chemical giant DuPont as we as Japanese CFC makers are in the search of chea substitute for CFCs. It appears that Asahi Glass (Japan has found an alternative known as HCFC-22 which has only a tenth of the Ozone activity of CF(the costs estimated to be as much as 3 to 5 times t produce. Japanese Daikin Industries has invented cleaning fluid called 5 FP based on an alcohol th does not contain the Ozone damaging cloring foun in CFCs. MITI'S National Chemical Laboratory fo Industry has been synthesising a range of CF alternatives based on perfluroalkyamines and other Unfortunately, the alternatives of CFCs developed s far are not compatible with existing equipment fo the production and consumption of today's CFCs.

The ban of CFCs production would be a seriou threat to Third World countries. "The big chemic multinationals want binding legal sanctior internationally to enforce the ban on CFCs. They hav invested huge sums in development of alternative and they are not about to let Third World produce take this market away from them", says one Londo industry analyst. In other words, it would be muc more difficult for the developing countries as the countries' consumption is confined to essenti functions like food processing, preservation (vaccines and pharmaceuticals, etc.

Myth or realit

CFCs are well known for their versatility, hi efficiency, durability and non-toxicity in its use. CF used as a codent for refrigators and air conditione as solvents for electronics industry, dry cleanin computer chips and other electronic components; a propellant for aerosolspray products; as a foami agent for thermal insulation products and foa rubber for mattresses and furniture. The econom impact of CFCs to Industry in USA in terms employment and value of products and services given in the next page.

The CFCs are said to work as a two-edged sword i on one hand they are widely used in useful functio

of a country and on the other hand they are presumed to add to the green house effect. As CFCs drift upward and reach the stratosphere, they are believed to react destructively with the Ozone layer. However, there is no scientific evidence so far to prove that CFCs are depleting the Ozone layer.

Economic Impact of Chlorofluerocarbons (CFC) in USA

Application	*CFC related employment*	*Value of products & services-US$*
Refrigeration	52,000 *	$ 6.0 billion *
Air conditioning	125,000*	$ 10.9 billion *
Mobile air conditioning	25,000	$ 2 0 billion
Plastic foams	40,000	$ 2 0 billion
Cleaning agents	over 10 000	Products valued in the billions of dollars
Food freezants	over 500	$ 400 million
Sterilants	over 500	$ 100 million

* Refrigeration and air conditioning maintenance and servicing provides 475,000 jobs and is valued at $ 5 5 billion.

Source. The Futurist, op. cit.

Recent outcry on 'global warming' should make us think other aspects which we normally tend to overlook. As an example let us examine the concept, whether Ozone depletion is caused due to CFCs is a story or myth.

It is interesting to note that the so called "Ozone Hole' in Antarctica was discovered by Gordon Dobson, the foremost researcher of the Ozone layer in 1956, years before man-made CFCs were in widespread use (Rogelio Maduro).

Present claims are based on the supposition that CFCs will rise to the stratosphere because they are not water soluble molecules. However, CFCs being heavy and complex molecules, it is strange how vast amounts of these molecules could rise to the stratosphere. Do these chemical reactions occur at all in the atmosphere ? *Physics Today* stated, "A single chlorine atom may destroy hundreds of thousands of Ozone molecule during its residence in the stratosphere" Although the chemical reactions described have been carried out in laboratory experiments, the reactions of CFCs in stratosphere have never been either observed or measured. Thus it is hard to believe that CFCs are destroying atmospheric Ozone layer as they are inert, non-reactive, non-toxic, non-flammable chemical compounds.

Chemicals which have been found to cause environmental damage are in existence only during the past couple of decades. While the earth is in existence since the time immemorial, we find historical evidences of civilisations or animals having been wiped out without leaving any trace about what caused it. This brings us to question whether we know enough abouth environment ?

Furthermore, if CFCs are really causing the Ozone depletion then the Ozone layer should have ceased to exist millions of year before man ever emerged from the caves to burn his first biomass. Chlorine happens to be one of the most naturally abundant chemicals in the atmosphere.

The North Pole is believed to be the largest single polluted zone where in winter the Arctic is tilted into constant night and the sun does not generate cleaning winds and precipitation and 90% of earth's population lives in the Northern Hemisphere. A major hole was detected by the scientists in the Ozone screeen over Antarctica in South Pole, although South Pole seems fairly clean and unpolluted area. In other words, one wonders how and why such hole occurred in Antarctica and not elsewhere. One more question among several to science; "Is this a result of natural activity or man's" or is it true that science has more questions than answers ?

Accordingly to a study report by some scientsists which appeared in New York Times newspaper, the Ozone hole over Antarctica and a smaller hole over the Arctic have become seasonal occuranças; opening in springtime and closing with the onset of winter. Whether these are caused by only CFCs is therefore questionable.

As per Economic Intelligence Review. it is estimated that the yearly production of CFCs is over million tonnes per year. This corresponds to chlorine of about 750,000 tonnes. This amount of chlorine needs to be compared with naturally occurring sources of chlorine gases, as argued below:

> About 300 million tonnes of chlorine are released into the atmosphere every year by the evaporation of sea water which contains salt (sodium chloride). This chlorine reaches stratosphere and finally breaks up the sodium chloride molecules.
>
> Degassing volcanoes release 11 to 36 million tonnes of chlorine gases in years without volcanic eruptions.
>
> The burning of biomass releases about 4.2 million tonnes of chlorine gas per year as a result of stone age slash and burn agriculture methods practised in some countries.

To emphasise this fact further it is relevant to note that the eruption of one volcano, namely, Tambera in 1815 released 211 million tonnes of chlorine gases into the atmosphere. It is estimated that at the present rate of production of CFCs it would take 285 years to put as much chlorine into the atmosphere as Tambera did in a few weeks.

We live on a forgiving planet with mechanisms to deal with natural pollutants. Decay, sea spray and volcanic eruptions annually release more sulphur than all the power plants, smelters and other industries. Furthermore, as we all know that deeper we go inside the earth, it gets warmer and warmer. There are instances of undersea volcanic eruptions

which cause massive tidal waves drowning complete islands and coastal areas. Moreover, above us we are surrounded by gaseous layers which scientists believe that they protect us from ultra violet rays and other harmful elements. But the sanctity of these protective layers against cosmic forces is yet not known to us. It is also true that any major happening in the cosmos may have devastating impact on the earth's environment. What causes such happening is still shrouded by mystery, leave alone the steps to be taken for protecting mankind against such environmental factors.

It is claimed that forests and water sources are getting increasingly polluted by our present level of industrialisation. This claim itself cannot be generalised and is questionable. Besides, natural forests and water sources have shown remarkable ability for regeneration against man-made misuse.

It is also believed that excessive exposure of human skins against sunshine causes skin diseases including cancer. And in countries like Australia which is nearer to Antarctica region, people are scared to wear half-sleeve clothes. Whether so called release of man-made gases in the atmosphere are responsible for this type of skin ailment is questionable. Human and animal skin in different parts of the world varies widely mainly in conformity with the natural needs. For instance, skin of an African national can withstand more severe exposure to sunshine compared to say any national from Scandinavian country where there is not much sunshine. Even among plants it is found that plants in the desert have a special skin to protect against exposure to heat and for retention of moisture. Couple of hundreds of years back when Europeans came to hot tropical countries, they suffered more skin ailments than what is now claimed to be caused by depleting Ozone layer. Needless to say there was no such man-made chemicals those days.

Conclusion

In an effort to reduce the harmful impact of above mentioned substances, there is a race among advanced nations to find substitutes. Preliminary findings indicate that such substitutes will be 5-6 times costly. Economic impacts of this on industry can be well imagined. Also world-wide commercial exploitation by early inventors on the large user industry world over cannot be ruled out. It has happened earlier in case of discovery of medicines to cure difficult diseases. But will anyone guarantee that today's discovery of substitutes will not prove to be damaging after a dacade or so ?

Talking about global threat to environment from man-made chemi cals, one cannot ignore the fact that a handful of industrialised nations produce 80% of these so called environment damaging chemical substances. While 20% is spread out globally in other developing countries. Thus, the stringent measures applicable for these developed nations may not be necessary to be the same for developing countries. How relevant are these issues in the economic, ecological status of individual nations and regions should be examined and understood first. Thus any effort to globalise these issues without establishing evidence for ill effects, may only harm the process of industrialisation in developing world.

Instead of joining hands with the outcry of developed nations on environmental issues, developing countries like India will be better off, if we focus our attention to the following:

- Ensure clean and hygienic living and working conditions for the people;
- Sponsor research on environment issues pertaining to the region;
- Ensure safety against known and proven indsutrial hazards;
- Find economical methods for salvaging hazardous industrial wastes:
- Encourage afforestation.
- Find out substitutes for proven hazardous materials based on local resources and needs instead of blindly depending on advanced nations to find solutions;
- Ensuring environmental education s a part of school and college curriculum;
  Dissemination of authentic information to the masses concerning environment instead of making it an issue for journalistic over reaction.
- Stop harassment of people and project proposals in the name of environmental protection. In other words, stop building up an elite environmental lobby instead make it known to every one that environment belongs to all and equally and it is a common public issue Thus without public education, information and participation, nothing can be achieved.

We must address ourselves for framing sensible environment policies based on our own resoruces and technology. But there is unfortunately no coherent national policy on environment which is focussed on thrust areas. Nor is there any organised effort to address growing shortage of trained scientists, engineers and professionals in the area of environment. Thus let us first get on with the basics instead of getting trapped into constroversies. ■

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Sea disposal of Nuclear wastes

Shibdas Burman

The author brings out vividly the causes of sea pollution by nuclear wastes and their implications. He throws light on the findings of London dumping convention, the existing laws and their usefulness in global context. What are the compulsions? And the choice? For the region, he suggests the setting up of a Regional Convention, evolve policies and strategies for sea waste management.

THE POLLUTION OF THE environment by ionising radiations-the unseen, unfelt ones with their possible harmful effects on living organisms-has become a subject of debate It is an open question if man, the jewel of creation, borrowing Ptolemy's way of thinking, would be able to survive the changes of environment that his own ingenuity has brought about

This possibility of pollution stems from the development of nuclear energy as one of the major contributors to the world's power sources Pollution in the production of nuclear energy arises from two factors. One is thermal pollution, which is common to all methods of energy production based on the conversion of heat. The other factor is the problem of radioactivity.

In a reactor running at a level of 1,000 MWe (electrical) some 10^{20} new radioactive nuclides are produced every second by fission. Most of the radionuclides are short-lived ones, but some of these have long half-lives (when the activity declines to half of the initial value) and take a very long time to reach equilibrium After six months of running, the activity in such a reactor is 7×10^{8} curies,
that is, about 2.6×10^{19} Bq (Note 1).

It may for comparison be mentioned that the present ocean possesses about 1.5×10 Bq (0.4×10 Ci) of radioactivity due to Potassium 40 decay alone (Table-I). A living human adult contains about 4×10^{3} Bq each of Carbon 14 and Potassium 40. The Chernobyl accident in 1986 released more than 3.2×10 Bq of radioactivity.

The views expressed here are those of the author, and not of the organisation where he works.

Global problem

In 1980 Sivard estimated that over 50,000 nuclear weapons are deployed in 24 countries and their dependencies. In 1983, the US nuclear weapons stockpile was 26,000 (rounded to the nearest 500 warheads). A nuclear weapon is a fully integrated nuclear warhead with its delivery system. It is estimated that in the US 16,000 new nuclear warheads will be produced through 1990 and then an additional 12,000 are identified in current R & D programmes through the 1990s. The gigantic magnitude of the radioactive wastes arising from nuclear weapons and nuclear power productions has resulted in a global problem. The safe disposal of nuclear powered vessels is another global concern (Table 2). For the US alone, it is reported that over 100 nuclear submarines are to be decommissioned at a rate of three to four ships a year. (Note 2).

The sea is naturally radioactive and contains alpha, beta and gamma emitters. Most of the radioactivity is due to the long-lived radionuclide potassium 40. Short-lived nuclides, formed by collision of cosmic rays with atoms in the atmosphere, are also present in sea water, notably tritium (H 3). The total natural background radioactivity of sea water is about 13 Bq per litre. Deep sea sediments are also naturally radioactive with levels between 5×10^{2} and 2×10 Bq per kilogram

This background activity in the sea has been augmented globally by fallout from the tests of nuclear weapons in the atmosphere and locally by dumping or by coastal discharges of waste. These artificial components have so far added about 0.6 and 0.005 per cent respectively to the overall background radioactivity of the oceans.

LLW dumping

Regarding sea disposal of low level radioactive waste the United States over the years 1946-70 dumped around 122,530 curies at sites in the Atlantic, the Pacific and the Gulf of Mexico- with most of the amount dumped prior to 1963.

The European countries dumped in the North East Atlantic dumpsite alpha activity of about 18,380 (12,324 being UK's share) curies and beta-gamma activities (including tritium) of about 1.43 (0.79 by UK)

million curies. In recent years (1971-82) the dumpsite covered an area between 45 50 N and 46 10 N latitudes and extending from 16 00 W to 17 30 W longitudes. The average depth of the site is 4,400 metre.

In the UK, in the mid-1970s, Sellafield released about 200,000 curies per year in the Irish Sea. In 1984, this had been decreased to 45,000 curies.

By 1991, the British Nuclear Fuels Limited (BNFL) plans to reduce alpha discharges in Sellafield to 0.74 Terra Bq (20 curies) and short-lived radionuclides to 300 Terra Bq (8,100 curies). In the US, about 1,000 curies per day were deposited directly into the Columbia river which flowed into the Pacific Ocean by the Hanford's reactor plants. Table 4 is a summary of the quantities of packaged radioactive wastes dumped in the oceans.

The accidental releases of radionuclides to the marine environment account for appreciable yet non-quantifiable radioactivity introduced by man. For example, the single event of the nuclear satellite power source SNAP-9A in April 1964 alone deposited about 12,000 curies of Plutonium-238 into the ocean. In contrast, the Sellafield discharge during the 21-year period, 1957 to 1978, amounted to 14,000 curies of Plutonium-239/240. An accurate inventory of such accidents is important. The possibility of such accidental releases of radioactivity would be expected to increase if the Star War plan goes ahead.

The International Commission on Radiological Protection (ICRP) suggested in 1985, that the principal dose limit of radiation for members of the general public is 100 millirem per year.

However, it is permissible to use a subsidiary dose limit of 500 mrem (millirem) per year for some years, provided that the annual effective dose equivalent over a life-time dose not exceed the principal limit of 100 mrem per year (Note 3).

We try to present some data on effect on populations of sea disposal of low level radioactive wastes. A 1984 report from the US National Advisory Committee on Oceans and Atmosphere (NACOA) on the Nuclear Waste Management and the use of the sea states: that the results of the investigations by independent academic researchers concluded that the discharge from the Columbia river at Hanford into the North Pacific Ocean at the rate of about 1,000 curies per day did not affect marine oganisms or jeopardize the health of man.

The Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD) published a review of the radioactive waste dumpsite in the North East Atlantic in 1985. It considered three scenarios, A, B and C, which are as follows:

Scenario A	Past dumping,
Scenario B	Past dumping plus 5 years' dumping at rates typical of recent years, 1978-82,
Scenario C	past dumping plus 5 years' dumping at rates 10 times those typical of recent years.

The review found that doses to man, from all the three scenarios are less than or equal to 10^{-2} mrem per year.

On the effect on marine biota, within the dumpsite, it was found that past dumping gives dose rates of the order of the natural background for all organisms except the molluscs which receive higher exposures.

National laws

In September 1985, the London Dumping Convention (LDC) of the International Maritime Organisation (IMO) decided to continue its two-year non-binding moratorium on sea disposal of low level radioactive waste. At present, only the United Kingdom, Switzerland, Belgium, France and Japan maintain the option of continuing to dump when the moratorium on the dumping of radioactive wastes at sea is lifted.

In certain countries, such as, Australia, Denmark, Finland, Mexico, Portugal, Sweden and the Soviet Union, sea disposal of radioactive waste is prohibited by law or regulation. Other countries, such as, Chile, Canada, Japan, the United Kingdom, the United States and Spain, have no specific laws prohibiting sea disposal of radioactive wastes, but follow the London Dumping Convention The Federal Republic of Germany and the Netherlands do not prohibit sea disposal of radioactive waste by law, but licences are not granted due to national policies. In other countries, such as, Norway, there are no spcific laws to regulate nuclear waste or their disposal at sea but Norway and many other countries follow the London Dumping Convention (LDC/IGPRAD 2/8, 2 November 1988)

As on 26 July 1988, sixty-two Governments have ratified or acceded to the London Dumping Convention India is not a Contracting Party to the LDC. The ultimate goal of the Convention is 'prevention of marine pollution'.

One of the central problems before the London Dumping Convention is this: Are the respective views of Contracting Parties on a ban to dumping versus an holistic waste management approach necessarily mutually exclusive ? A problem facing the Convention, as Rt. Hon. Baroness White observes, is its restriction to deliberate dumping at sea, which comprises only ten per cent of marine pollution. Currently, there is no international treaty, regulating the other ninety per cent of marine pollution that originates from land- based sources (LDC 12/16, December 1,1989)

The issue

The sea disposal of radioactive wastes has become a subject of heated debate. The above-mentioned discussion may given an idea of the magnitude and importance of the problem. The ocean already

contains a large amount of natural radioactivity. The total amount of anthropogenic radioactivity that has found its way into the ocean since 1944 is about one-tenth of one per cent of the total natural radioactivity in the ocean.

The ocean has, however, a limited capacity to accommodate anthropogenic radionuclides of sprecific species and in specific regions for time periods of decades to centuries. The most likely link between marine radioactivity and man is through seafood

All radioactive wastes are not created equal. In assessing cost benefit equation, half-lives and specific activities should be assessed in deciding what type of wastes could be disposed of at sea safely. Probably more than the threat posed by sea disposal of nuclear waste to the planet there are other real threats. These global threats are the greenhouse warming effect, acid rain, and all the gaseous emissions responsible for atmospheric pollution. There are, the threats posed by deforestation, soil erosion, resistance episodes of pesticides too.

The United States National Advisory Committee on Oceans and Atmosphere in a report (April 1984) recommends that the Congress and the Administration revise the present policy of excluding the use of the ocean for low-level radioactive waste disposal. Ocean disposal should not be initiated until adequately funded, well-identified monitoring and research efforts are established that provide a full assessment of the fate and effects of such disposal. *We are not prepared at this time to suggest that the administration should reverse its present land-oriented position. However, we do believe the ocean option should not be dismissed out of hand.*

Other forms of marine pollution

Radioactive pollution of marine environment is one form of industrial pollution generated by modern industry (Table 4). It has been found that sewage to the tune of 3.7 cubic km. is added every year to the Indian ocean along the Indian coastline. The industrial wastes going into the Indian coastal waters have been estimated to be about 0.37 cubic km. and the solid wastes generated by the coastal population in India, about 2.5 million tonnes. Further, about 20,000 and 30,000 tonnes of pesticides and detergents are added to the Indian coastal water every year, according to V.V.R. Varadachari and V.K. Das of the National Institute of Oceanography (NIO), Goa, a CSIR laboratory.

North Sea is an example of highly polluted sea. Rivers are held to be chiefly responsible for the 500,000 tonnes of nitrogen and 46,000 tonnes of phosphorus dumped in the North Sea each year. Much of the 110 tonnes of mercury, 100 tonnes of cadmium, 21,800 tonnes of lead and 107,100 tonnes of zinc entering the North Sea annually is thought to come from rivers reaching the sea from Britain Belgium, Holland, Germany and Denmark. More pollution also comes from the direct dumping of chemical wastes at sea (*New Scientist*., 11 Dec., 1986)

One example of other forms of pollution is the making of ecological crisis by oil spills in oceans An Iranian tanker, 284,632-ton Khark 5 recently spills off Morocco some 19 million gal. of crude oil, nearly twice the amount disgorged by the Exxon Valdez in Alaska in March 1989 (TIME, 15 January 1990). The incident should sharpen scrutiny of the world's aging supertanker fleet.

Where do we go from here ? I have been thinking that countries in the South Asia and adjacent region may like to set up a Regional Convention to evolve policies and strategies for ocean waste management. It the idea catches on, the convention could be named, after the city where such a meet takes decisive action.

India may select some 'test' sites in the Indian ocean region and initiate a monitoring programme.

Table 1

Estimated quantities of certain natural radionuclides in the oceans

		Half-life years	Emissions	Concentration $Bq l^{-1}$	Quantity TBq
Primordial radionuclides	40K	1.3×10^{9}	beta/gamma	1.2×10^{1}	1.6×10^{10}
	235U	7.0×10^{8}	alpha	$(1.6\text{-}1.9)\times10^{-3}$	2.4×10^{8}
	238U	4.5×10^{9}	alpha	$(3.6\text{-}4.4)\times10^{-2}$	5.6×10^{7}
	232Th	1.4×10^{10}	alpha	$(0.4\text{-}29)\times10^{-4}$	$(0.6\text{-}40)\times10^{3}$
Daughter radionuclide	226Ra	1.6×10^{3}	alpha	$(0.9\text{-}7.7)\times10^{-3}$	4.7×10^{4}
Cosmogenic radionuclides	3H	1.2×10^{1}	beta	$(2.2\text{-}11)\times10^{-2}$	8.5×10^{6}
	14C	5.7×10^{3}	beta	$(5.9\text{-}6.7)\times10^{-3}$	8.0×10^{6}

Source : IMO, LDC 9/4, Annex 2, 24 June 1985

Those would provide baseline data both to increase our knowledge of various processes, physical and biological, and to provide scientific data which will contribute to the evolution of future policies.

Human activity inevitably produces wastes which have to be dumped somehow and somewhere. There is opposition to dumping wastes at sea as well as the public reaction in some countries against the alternative form of disposal on land. Some countries may not have suitable land for disposal purpose. Some people see in the sea dumping of nuclear wastes 'the Faustian nature of the disposal bargain-the present advantage in return for liability stretching millenia into the future.'

Table 2

Nuclear Reactors on Naval Vessels as of December 1987

Nuclear Ship Types	*United States*	*Soviet Union*	*United Kingdom*	*France*	*China*	*Total*
Ballistic Missile Submaries	36	124	4	6	2	172
Cruise Missile Submarines	0	70	0	0	0	70
Attack Submarines	96	136	15	3	3	255
Aircraft Carriers	16	0	0	0	0	16
Cruisers	18	4	0	0	0	22
Other*	1	8	0	0	0	9
Total	169	342	19	9	5	544

* Ice-breakers and naval research vessels

Source: J. Handler and W.M. Arkin, Greenpeace USA, May 1988.

Unless the wastes are disposed off in deep geological formations, there are chances of the nuclear wastes dumped on land ultimately polluting freshwater sources. A Russian estimate puts the freshwater cycle in the globe amounting to merely 0.77 per cent of total water volume. As nuclear energy for power generation is increasingly grown on a global scale the wastes produced would be enormous. Man should at least not increase nuclear stockpiles and nuclear powered naval vessels. The responsibility to ensure it falls on the peoples of the globe.

Note 1. The standard international unit of radioactivity is one disintegration (transformation) of an atom per second for which the special name becquerel (Bq) has been accepted.
1 Ci (curie) is equivalent to 3.7 x 10^{10} Bq.
1 TBq (terra becquerel) = 1 x 10^{12} Bq or 27.03 Ci.
The curie is chosen to approximate the activity of 1 gram of Radium 226.

Note 2. When a naval vessel is removed from active service it is said to be decommissioned. Before the vessel is removed from service, the fuel is removed from its reactor pressure vessel in a process called defueling. Even after defueling, radioactivity remains in the vessel. In USA approximately 62,000 curies of radioactive materials remain in each defueled submarine; 99.9 precent of it is

Table 3

Summary of the quantities of packaged radioactive wastes dumped in the oceans

	Number of sites	Years operational	Number of containers		Total activity TBq
United States					
Pacific Ocean	16	1946-1970	56,991		5.5 × 10^{2}
Atlantic Ocean	6	1949-1967	55,020		4 0 × 10^{3}
Gulf of Mexico	2	1955-1958	79		0 4
European countries			Mass		
NE Atlantic Ocean	10	1949-1982	142,275 tonnes	alpha-activity	6.8 × 10^{2}
				beta/gamma-activity	3 8 × 10^{4}
				3H	1 5 × 10^{4}*
Japan					
Pacific Ocean	1	1955-1969	1,661	60Co	15
Republic of Korea	1	1968-1972	115		Not available

* Data for 3H only apply for 1975-1982, for previous years 3H was included with the beta/gamma activity.

Source: IMO, LDC 9/4, Annex 2, 24 June 1985.

Table 4

Waste Disposal at Sea
Beyond the 200 mile zone
(Period 1976 to 1985. By category, in tonnes)

Category	Disposal beyond 200 miles	Total disposal at sea	Disposal beyond 200 miles as percentage of total
Dredged material	7,254,000	1,818,120,000	0 40
Industrial waste (*)	228,100	124,905,000	0.18
Radioactive waste (**)	45,400	45,400	100 00
Sewage sludge	607,000	152,046,000	0 40
Incineration	6,200	297,400	2 08

(I) all categories

(**) excepting tracer experiments

Source: IMO, LDC 12/8, 3 October 1989

an integral part of the structural alloys forming the plant components.

Naval nuclear weapons now number 15,000 to 16,000. There are approximately forty-eight nuclear warheads and seven nuclear power reactors on the bottom of the oceans as a result of various accidents, according to J. Handler and W.M. Arkin's report on Naval Accidents between 1945-88 (June 1989).

Note 3 The rem (roentgen equivalent man) is an unit of ionising radiation and takes into account the relative biological effectiveness factor of various types of radiation. The natural background ratiation delivers a life-time dose of approximately 100 millirem (mrem). A single chest-X ray could account for dose in the 20 to 500 mrem range. A high dose of radiation, several hundred rems, might result in the death of an individual within a few weeks

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On all the above mentioned critical issues there have been indepth studies. The results of these studies and the recommendations have been incorporated into the planning of the Narmada Project. Those who oppose the Narmada Project say that the planning on paper is very good. But the implementation will not be as good as it appears on the paper. There is only one solution: various groups should take active interest in the implementation and wherever the implementation is found faulty they should organise public opinion and should see that the implementation is done as per the planning.

Sardar Sarovar is a multi-disciplinary development project. All those concerned with development and taking positions on various issues have influenced and will keep on influencing happenings at Sardar Sarovar. Democratic development requires this openness. □

Dr. Vidyut Joshi, Professor of Behavioural Science, Gandhi Labour Institute, Ahmedabad.

(Contd. from page 22)

allocated for the rehabilitation of 12,180 families. Sectoral distribution of this amount is as follows: Rs. 216 crores for Madhya Pradesh oustees, Rs. 27 crores for Maharashtra and Rs. 24 crores for Gujarat oustees. On an average, more than Rs. 2.5 lakh per family will be spent for the purpose of rehabilitation.

Book Review

The Economic History of India, Vol. II, Romesh Dutt, Pages 441, Price Rs. 72/-, Publications Division, 1989

Insight and Hindsight

"If it were true that this duty (import duty on cotton manufactures) is the means of excluding English competition, and thereby raising the price of a necessary of life to the vast masses of Indian consumers, it is unnecessary for me to remark that it would be open to economical objections of the gravest Kind."

— Lord Salisbury, Secretary of State for India to the Viceroy, July 1875

"(He is) utterly dismayed given the persistence of our enormous trade deficit that only one country India, engages in trade practices that impede American exports."

— Robert Byrd, U.S. Senator, April 1990, naming India as Offender under U.S. "Super 301". Act

Nothing has really changed.

And this is perhaps, the most important message of the book , a message its author, writing in 1903, could not have intended. Reading it in 1990 enables us to have two visions of the economic history of India ; the first is from the narrative of Mr. Dutt's as he surveys India in the Victorian Age 1837–1900, and the second is from our reading of Mr. Dutt's narrative with today's eyes. Both visions are revealing in their own ways. The book has by now become both a book on economic history of India and a historical document of India.

To understand the first aspect it is necessary to remember that the author in his time was a member of a conscious movement of modernist reformers of the British colonial empire, which sought to provide a systematic critique of the economic practices of the British rule through the drain of wealth theory. The other members were men like Dadabhai Naoroji, Ranade and G.V. Joshi. It will not be unkind to say of these men that their reformism was both their strength and their weakness. When Mr. Dutt writes that "It would be a grateful story for Englishmen to tell that England in the twentieth century undid her past mistakes in India as in Ireland; that she lightened land taxes, revived industries, introduced representation, and ruled India for the good of her people ...", he is writing from the moral strength of a reformer. It will be unfair of us now to cavil at his underlying belief in the imperial system. Much of the history that we know today—the democratic revolutions in Russia, China, Turkey etc, the Gandhis, Bhagatsinghs, etc, the wars—had not happened. And that is the weakness in Mr. Dutt's narrative. He has been no doubt outmoded by history, but who isn't ?

True to the reformist mould, Mr. Dutt classified the victorian age in three periods ; Under the Company (1838-1858), under the Queen (1858-1876), under the Empress (1877-1900). And with bureaucrats' passion for detail and symmetry, he surveyed the developments in each of these periods under the set headings of rulers or viceroys, land settlements, trade and manufacture, railways and irrigation, finance and debt, and tariffs.

The format and the periodisation may look quaint now, but the detailed contents still have the power to shock. After all, even to this day there are many who believe that all having been said and done the British rule, on the whole, took India forward. It is to them this book is truly aimed at. No review can attempt to convey the force of facts, reports and statistics amassed by Mr. Dutt to demonstrate the regressive effect of British rule on Indian society.

To illustrate, less strongly than Mr. Dutt, let us take land settlements. It was Lord Bentinck who removed the Clivean predatory land taxation by introducing for the first time long-term settlements in 1833, and the *reduced* state-demand was fixed by him at 66 per cent of the rental accruing to the landlords. This was in the Northern India which was under the Zamindari system of land ownership. Southern India then and later was under the Ryotwari system of land ownership where the cultivator paid taxes directly to the state in the form of a fixed sum of *money*, and the tax rate worked out *worse* than in Northern India. The author cites numerous *British* reports which stated that the rate of land tax in India and the methods of collection were cruel and morally repugnant. In the period under Queen's Rule (1858-1876) the author surveys the state of land administration, and shows how despite the onset of regular famines and widespread ruin of agriculture not only are the land-taxes not reduced, but also that despite the well meaning efforts of men like Lord Canning and Sir John Lawrence, the British Government abandons the *British* proposal for a permanent land settlement for India. And finally in the last period surveyed by the author when famines and depopulation of the countryside have provoked riots and peasant revolts, the Empress of India through her officials finds herself forced to look into the *methods* of collecting land taxes ! Going through the

painstaking chronicling done by Mr. Dutt, even the most unworldly consciences will be appalled. Several liberal British men, mainly those who lived in India, were apalled at the results of their own actions. Mr. Dutt chronicles their concurrent dismay as well.

The author brings out a similar outcome to India of British rule in respect of trade and manufacture, tariffs, finance and debt, irrigation and railways with similar piling up of facts and statistics. In fact it was Mr. Dutt's survey of Indian finance and debt, that first demonstrated the truth of the drain of wealth "theory". For this he is justly celebrated. His examination of other aspects of British rule are not less trenchant. These still await the attentions of follow-up scholarship.

It is hard to resist a mention of the contrast brought out by Mr. Dutt between British approach to railways and irrigation in India. Not only had the British neglected the major irrigation works in place since Mughal times, but they also favoured expenditure on railways as against on irrigation. This for a peculiar reason. Construction of railways was contracted to British railway companies which were guaranteed a return of 5 per cent on their expenditure; shortfalls were made good by the State. There was no condition of economy, passenger-comfort, or efficiency of operation. Everybody benefitted from railways except India, and needless to say the guarantee payments to the railway companies were added to the debt of India to Britain, to be repaid out of future revenues to be generated by India. Irrigation canals could have not only improved agricultural yields but would also have provided cheap inland transportation. But irrigation was ignored. Railways provided faster transits to the ports, which was where the British interests really were. It will be very interesting indeed if someone carried Mr. Dutt's narrative of Indian railways and irrigation forward to 1990.

The summing up of the first vision of ecônomic history of India provided by the book is, fittingly, best done by Mr. Dutt himself. "It would be a sad story", he says, "for future historians to tell that the Empire gave the people of India peace but not prosperity; that the manufacturers lost their industries, that the cultivators were ground down by heavy and variable taxation which precluded any saving; that the revenues of the country were to a large extent diverted to England; and that recurring and desolating famines swept away millions of the population." It has indeed been a sad story.

As mentioned in the beginning the book needs to be read in its second aspect as well, that of a document of Indian history. Here is a book produced in India in the transitional period between the 19th and the 20th century, attempting to comprehend India's economy in the 19th century, written by a scholar produced by the best of the prevailing colonial system, seeking to reform the colonial system by appealing to British reason and conscience. Mr. Dutt was addressing the system while presupposing the premises of the very same system. He noticed but could not comprehend that British empire was itself a changeable product of European History; that towards the close of the 19th century the British Empire had outstripped its own reason and conscience of the Victorian era; and that reforms carried out by oppressors tend to intensify the process of oppression. Although it is only with hindsight that we can see today the sad ironies of Mr. Dutt's enterprise, but hindsight is also an insight for the future. Today we have Senator Byrd's utterances, quoted in the beginning, as testimony that economic hegemony over India is not a thing of the past. We also know the present state of internal and external indebtedness of India, of Indian trade and manufacture, of Indian irrigation and railways, and so on. While addressing ourselves to these matters we should not, like Mr. Dutt, share the premises of the very forces which still hinder India. The inadvertent hindsight provided by Mr. Dutt is a standing warning. And this is his final gift to us.

Taposh Chakravorty

Dr. Brajendra Nath Banerjee; Can the Ganga be Cleaned? B.R. Publishing Corporation, pp. 197, Price. 150.

The author, a learned and versatile intellectual, Dr. Brajendra Nath Banerjee, has used a blunt style in presenting his view of facts. Says he, "the ambitious Ganga Action, launched two years ago by Prime Minister Rajiv Gandhi, does not appear to have brought any qualitative change in the country's holiest river". This subjective view of the learned author, is not supported by adequate data. One has only to visit Hardwar to see the clean waters of the Ganga. However, the author makes pertinent suggestions to make the scheme successful. Adequate staff both technical and administrative is necessary to ensure success of the operation to clean the Ganga. author rightly points out: "The idea of creating green belts on both banks of the river or of containing urbanisation to prevent further pollution does not even figure in the action plan". It is disturbingly silent on the fate of the five major development projects including three big power stations which are to be built on the banks of the river.

The chapter on "the Ganga, Ecstasy and Agony" contains mythological stories regarding the Kumbh mela which is staged at four major centers on the

banks of the river. This, the author has probably included in the book to relieve the reader, of the monotony of reading technical details relating to cleaning the river.

The book on the whole is useful to those engaged in the grand operation to clean the historic river. After traversing 190 pages of the volume, one comes to the conclusion that the exercise initiated by the Prime Minister three years back is a valuable feature of his plan to reconstruct the Indian economy on scientific basis. The Government of India should establish a permanent Commission to clean all major rivers of India, since their pollution is a national hazard.

The author has made painstaking research on the subject supported by comprehensive bibliography. Even the general reader is not totally bored by its contents.

Dr Khilnani

ALTERNATIVE DESIGNS OF HUMAN ORGANISATIONS by Nitish R De. Published by Sage Publications Indian Pvt. Ltd. C-236, Defence Colony, New Delhi 110 024. First Published: 1984. Pages 243. Price Rs. 135.00

It is true that people get transformed by the work in which they are engaged over a period of time. They may be managers or mere cleaners. The author has dealt with this theme in the book in a theoretical manner with the help of diagrammes and illustrations.

It is in the national interest that work should produce strong, reliant and self-regarding people. Fred E. Emery, in his foreword to the book writes that when theories of diffusion are boiled down, this sanctioning of national interest in work democratisation is critical for the speed, scale and depth of diffusion. In the absence of such sanctioning, diffusion will be laborious and fragmentary, and frequently divisive. "It will be divisive when motives for work redesign are sought for in narrower sub-group interests e.g., as an attempt to keep out unions or to pare away managerial prerogatives."

The author writes five chapters in this book. Says he, "Today's efforts to create a desirable tomorrow are significant for at least two reasons : (a) a test-out of ideas, tools and strategies offers reflection, clarity and teleological insights in what could otherwise be a socially expensive leap in the dark ; (b) they foster a spirit of an 'invisible college' that facilitates a global network of social designers without the trappings of an over-burdened organisation." A work organisation is vital for bringing meaning to life, but nourishment of life demands that the social nexus too becomes an object of social action. An over whelming concern for a work system is to achieve its goals. The same is the case with humans. For humans, however, the motive force of behaviour lies in social character and personal interests (a reflection of character traits). This then becomes a source of conflict and hence, the need for alternative designs in human organisations.

Navin Chandra Joshi

(Contd. from page 18)

so in next 10 years. All these years, Gujarat spent nearly 28 per cent of its plan allocation for irrigation and it has the agreed that during the Eighth an Ninth Plan period nearly 25% will be spared for SSP.

Some critics have raised doubts about the efficacy of the deposit scheme. In fact, the deposit scheme of Nigam was launched on 27.3.89 and the Nigam has already collected Rs. 18 crores of deposit. SSNNL has already negotiated an inter-corporate loan of Rs. 200 crores from ONGC, and money is drawn as and when required. At present, public debentures are not needed. Gujarat government has already agreed to raise public debentures and timing has been left to the project authorities.

Efforts are on to compress the schedule to complete the project in 10 years instead of 17 years and to pass on the benefits much earlier. Saving from escalating cost and accrual of benefit earlier than 17 years is going to benefit tremendously-atleast much more than the amount of debt service.

It is estimated that Gujarat may have to raise Rs. 1500 to Rs. 2,000 crores in next 10 years by way of various means. Means to be adopted are so planned that average interest burden does not go beyond 10%. It will, therefore, be wrong to assume that the market borrowing will result in the project falling under a debt trap. In fact, the cash flow is so prepared that there will be no difficulty at all for repayment of deposits and borrowings with interest from the income of the project and from budgetary resources.

A detailed study was made on projections of cropping and land use pattern for command area and water allocation. The study was based on more than 70,000 of the total number of crop cutting experiments conducted in the state specially for this, Hence there is no question of overestimating the production figures.

It has also been established that irrigation, increased irrigation, higher cropping intensities and associated changes in cropping patterns, all affect different groups in different ways. For small and marginal farmers, irrigation means more productive work on their land, and increased intensities mean productive work on more days of the year.

Sanat Mehta, Former-Chairman,
S.S. N.N. Ltd, Gandhi Nagar, Gujarat.

Development Diary

National waste management

The Ministry of Environment and Forests has set up three sub-groups to work for the proper utilisation of wastes. These sub-groups will identify the waste, suggest technological alternative for reduction, recycling and reuse of waste and formulate action points as a basis for executive orders to be issued by Government including legislation, taxes and incentives.

It has also been decided that the new industrial units should ensure waste utilisation and this would be included in the licensing and consent conditions.

Environmental monitoring

The Government has set up an Environmental Monitoring Committee to oversee the implementation of the environmental safeguards at the stage of clearance. These will cover multipurpose, irrigation and flood control projects. The Committee will be headed by the Member (WP) in the Central Water Commission and the representatives of various ministries, including Water Resources as members.

The Committee will review the mechanism established by the project authorities to monitor the ecology of the project areas, irrigation command areas and the catchment areas and will suggest additional compensatory measures/facilities wherever necessary. It will prepare and submit an Annual Report on the status of environmental management of different projects in various river basins.

Encouraging trend in Sugar output

Production of sugar during the current season 1989-90 has been showing an encouraging trend. The output as on March 31, 1990 had been 81.69 lakh tonnes as against 74.80 lakh tonnes during corresponding period last year. It is expected that production this year may reach 104 lakh tonnes. This would be a record for the country.

Steps have been taken to attain self-sufficiency in sugar production in near future. Against the target of licensed capacity of 132.61 lakh tonnes upto the end of 7th Plan, a capacity of nearly 148.91 lakh tonnes has already been licensed upto February 28, 1990. Letters of intent and licences for new factories have been granted in 71 cases in various States of the country. For improved financial viability of existing factories, 143 factories have also been granted letters of intent for expansion of their capacity.

Revenue collections up

Revenue collection during the current financial year amounted to Rs. 49,609.57 crore. This is 15 per cent more than the corresponding figure of Rs. 43,138.62 crore during the last financial year.

Direct Tax Collection figure upto March 1990 was Rs. 9,547.24 crore against Rs. 8,644.72 crore upto March 1989, an increase of about 10.44 per cent.

Combined realisation of Customs and Central Excise upto March 1990 was Rs. 40,062.3 crore, registering an increase of 16.14 per cent over the corresponding figure last year.

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YOJANA : 33 years ago

June 2, 1957

Meeting Nicholas Caldor

A name which has been frequently mentioned luring the last week both in the Parliament and the Press is that of Professor Nicholas Caldor of Cambridge University; his report is he basis *of some of the taxation proposals* put orward by our Finance Minister.

Some years ago, I spent an afternoon in Caldor's home. Other guests were Mr. Dalton, he then Chancellor of the Exchequer, the celebrated economist, Joan Robinson and a batch of six students of Economics, the best here were in the University. The Chancellor had only a week earlier presented his budget to he Parliament. At this informal gathering, he was subjected to a searching cross-examination by the students and the professors. He explained and defended his proposals with a most off-the-record candour I have ever known. It was a most exhilarating experience-both for the students and for the Chancellor.

Couldn't our students persuade our Cabinet Ministers to take them in confidence and similarly learn from each other.

● ● ●

Gram Sevak conquers indifference

What goes to make up a successful Gram Sewak ? Let us take a look at Shri Mahesh Pratap Singh, Gram Sevak in the Bihta Community Project Block Sohawal, District Satna, Madhya Pradesh. He brought to his work at Bihta the sympathy and understanding that comes naturally to the son of a farmer. But mere understanding is not enough. Mahesh Pratap had also the necessary experience of dealing with various village problems having worked as a demonstration Jamadar in the Agriculture Department.

There were two items that claimed his immediate attention in the village-repairs to the roads and provision of drains. The first snag, Mahesh Pratap discovered, was the complete indifference of the villagers to any self-help approach. To them these items were the concern of the Government and not theirs. *Mahesh Pratap felt that the situation called for* drastic action– he donated Rs. 50 or half his month's salary for this work. The gesture worked and rightaway other contributions poured in. The drains were built and the roads repaired in a short time.

Mahesh did not stop there. First, he built a model well for the village with the help of the villagers. Then he gave the villagers an idea of a model house by building one for himself which had a patch of lawn, flower-beds and an attached kitchen garden. The villagers noted the improvements. A building for the village basic school and recreation centre were his next achievements.

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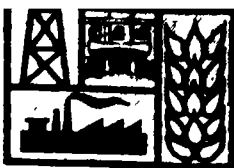
* LOAN – WAIVER
* SAW MILL WORKERS

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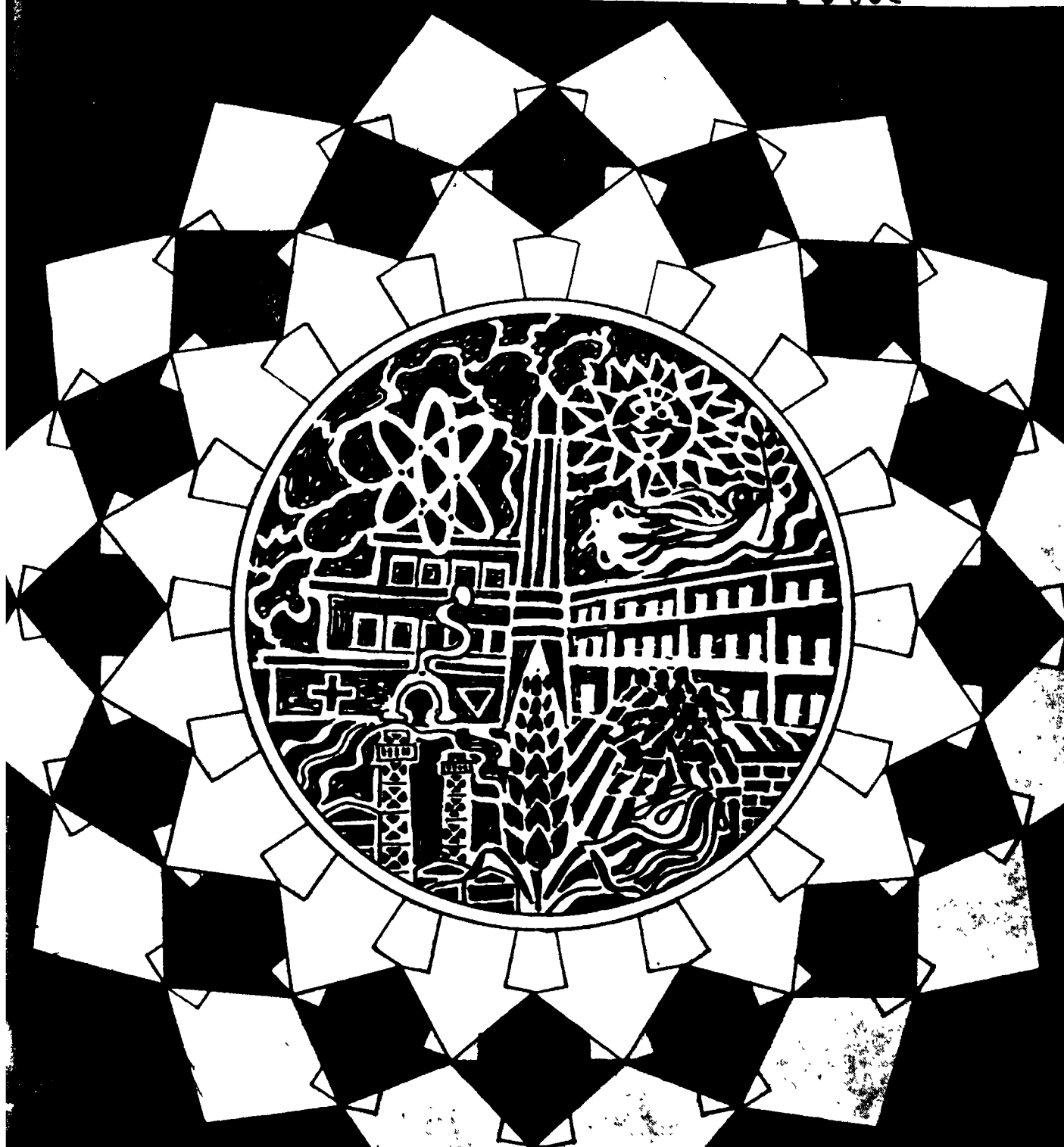
Development Diary

Expected growth rate

A growth rate of 5.3 per cent is expected during the Seventh Plan period. The Annual Report of the Planning Commission (1989-90) says that agricultural production is likely to be higher by about one per cent than in the previous year. The Gross Domestic Product (GDP) is expected to rise by 4 to 4.5 per cent during the year under review.

The Report underlines the Government's commitment to ensure that 50 per cent of the investible resources are utilised for the development of agricultlure and rural development.

On the positive side, generation of electricity is expected to reach 251 billion units at the end of the VII Plan. Production of coal is poised to cross the 200 million-tonne mark. Indigenous production of crude oil is likely to reach the level of 34.31 million tonnes.

The areas of concern include: widening of the agriculture-non-agriculture disparities in terms of output and incomes per head, inter-regional disparities and decline of employment in traditional crafts and industries.

The Report points out that the VIII Plan, which is being finalised, aims, among other things, at strengthening federal structure and decentralisation of authority and employment. It will be ensured that Planning becomes an instrument of social justice, economic emancipation, people's participation and cultural regeneration.

Chemicals and pharmaceuticals exports

Exports of chemicals, agro-chemicals and dye stuffs have made rapid strides. These are expected to touch Rs. 1300 crores in 1989-90 as against Rs. 780 crores in 1988-89.

The pharmaceutical sector, which achieved exports at an all-time high of Rs. 467 crores in 1988-89 is expected to reach Rs. 600 crores in 1989-90. Production of drugs and pharmaceuticals also continued to show an upward trend. As against Rs. 355 crores of bulk drugs and Rs. 1760 crores of formulations in 1983-84, their production is estimted to be of the order of Rs. 610 crores and Rs. 3360 crores respectively.

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Indo-EEC trade: shape of things to come

Navin Chandra Joshi

The total economic unification of EEC member states after 1992 will add to the problem of India in pushing its exports to the "Fortress Europe". This, the author contends, is not an unmixed blessing, as it offers Indian manufacturers an opportunity to improve the quality of their goods and competitiveness. This also calls for a fresh look at the industrial policy, including MRTP & FERA provisions, to face the future challenges, feels the author.

BY JANUARY 1993 WHEN AN integrated European narket concretises into reality in the form of a ortress Europe with a protectionist wall, the ackage of treaty reforms, known as the Single European Act (SEA) in operation from July 1987, will ave taken a full circle. The domestic market of Europe will then consist of 320 million people, nearly as nany as in the United States and Japan combined. As uch, India may then face a difficult time exporting to he European Economic Community (EEC) after 1992 vhen the trade barriers will completely be liminated in the region after achieving total conomic unification of the 12 member states of the EEC.

The single market has been defined as an area vithout internal frontiers in which the free novement of goods, persons, services and capital is ensured in accordance with the provisions of the SEA In effect, all the countries will become a single entity where everyone will have the freedom to establish business and run trade. Professionals also will have probelm with their qualifications to be recognised by another member state. Meanwhile, five European countries viz., France, West Germany, Belgium, Luxembourg and the Netherlands have decided to abolish by early next year their internal border controls, bringing up new pressure on Britain and other EEC member states to follow suit. However, Britain, the Irish Republic and Denmark have strongly opposed abolishing border controls, arguing that this would threaten internal security, giving a free run to drug traffickers, terrorists and illegal immigrants.

At present, the member states remain largely 12 seperate markets ranging in size from 3.7 lakhs people in Luxembourg to over 600 lakhs in Germany. India has, therefore, urged the EEC to give better access to Indian goods as the former is diversifying from primary commodities to value-added and technologically sophisticated products. Since the EEC has emerged as India's third largest trading partner, the qestion of market access to the community becomes extremely important as it would shape strategies for the future growth of trade and economic relations.

As a result of unification the weaker members of the EEC like Ireland, Spain, Portugal and Greece will have rapid economic growth and ahcieve significant competitive edge over developing countries like India in many of the products, particularly textiles, leather goods, etc., and this will reduce India's access to the EEC market. In any case, if India has to take increased advantage of the Indo-EEC market, the Indian industry must pay serious attention towards satisfaction of EEC consumers, technology upgradation and quality improvement, product innovations in design and fashions, packaging, etc., cost competitiveness, and marketing and advertisement compaigns.

Since EEC imports from India are restricted to essentials, measures need to be taken to give access to capital goods and modern technology to aid the process of modernisation so that competitiveness of India's exports is improved. Also, the process has already been set in motion by identifying new areas of cooperation in industry as well as science and technology which could help in strengthening the production base as also technological upgradation of industry.

While India's export to the EEC had increased significantly in 1987 by about 15 per cent, particularly in textiles and leather and as a result, the deficit last year declined for the first time in many years, yet, it is a matter of serious concern for India that nearly 50 per cent of its global trade deficit is accounted for by the EEC. India's exports to EEC in 1987-88 were Rs 3957.3 crores while imports were of the order of Rs.

7440.8 crores, leaving a deficit of Rs. 3483.5 crores. It is hoped that this deficit in 1988-89 would be somewhat less than this figure.

India is exporting mainly textiles, including jute, leather and its manufactures, polished diamonds, engineering goods and chemical products. Imports from the EEC include edible oils, fertilisers, dairy products, steel, boilers and related machinery, optical instruments, vehicles and their components, aluminium and copper products, aircraft and ships, synthetic rubber as well as photo and cinematographic goods.

New areas of cooperation have now been embarked upon in the fields of energy, and science and technology. It is proposed to establish an energy management centre in Nagpur. In the industrial field, a technology information centre is being set up in India to promote the development and acquisition of industrial technologies. A programme for training of Indian experts and provision of European experts in the field of industrial standards and quality control has been framed. It is encouraging to note that the community is continuing its operation Flood III (1987-94) of ECU 150 million (1 ECU = US $ 1.3) or 25 per cent of the total costs. While EEC's financial assistance has been declining since 1987, its contribution to the Operation Flood and the emergency aid contribution of over ECUs 29 million towards drought relief have been appreciated by India The possibility of supply of certain essential items such as edible oils under the assistance programme has also been explored.

In the matter of trade, India's poor export performance in EEC markets cannot be explained by a lack of competitiveness or poor quality alone. No less significant has been the role played by the protectionist policy pursued by EEC. The market access accorded by EEC's Generalised Scheme of preferences (GSP) is applicable to no more than a tenth of all EEC imports. Worse still is the impact of non-tariff barriers which impede nearly two-third of India's exports to EEC. India should first ensure that its exports get better access to EEC market and industrial tie-ups should be considered only if they help India narrow its trade deficit with EEC Otherwise, there is a danger that European companies may well utilise industrial tie-ups to increase their penetration into Indian market and further widen our trade deficit.

At the same time, Indian exporters should not take the EEC market for granted as no government can dictate to industry and trade to buy anthing that India supplies. The EEC market is quality-conscious Price competitiveness is a major criterion. Equally important are delivery schedules and continuity of supplies. Even more significicant are seasonal changes in fashions and designs. Do Indian exporters fulfil all these conditions in order to make a break through in a sophisticated market like the EEC ? Selling to the 12-nation EEC is far from easy not because it puts obstacles in the way of exporters, it is also because the EEC is a highly competitive market courted by 100 trading nations. Experience suggests that in order to compete successfully in the community market it is necessary to be competitive at home also. This would call for cutting cost of production and improving quality substantially.

It may be noted that small Asian countries like South Korea, Taiwan and Hong Kong have done much better than India in the EEC market even though their textile exports too came under the restriction as in the case of India. The exports from these small countries consist of 'standard items' which the normal European consumer buys. Unfortunately, Indian exporters do not conform to this elementary rule. They have to come to terms with the realities and understand the community's market fully well. China is also going ahead strengthening its trade links with EEC. In 1986, China's exports to EEC amounted to $ 2.2 billion. As such, product development and technological upgradation deserve much more attention if India is to sell in the sophisticated marke of EEC.

The European Economic Community, as is wellknown, was formed on January 1, 1958 when it consisted of six nations viz., France, West Germany, Italy, Belgium, Netherlands and Luxembourg. Later on, from time to time, six other nations viz., the U.K., Denmark, Ireland, Greece, Spain and Portugal also joined the Community (also known as European Conmmon Market). This Common Market of West European countries aims at getting rid of the antiquated economic frontiers which split Western Europe into small protected markets. One of its important objectives has been to make the community a single economic area for promoting technological progress and efficient use of resources in both agriculture and industry The Community has been established for an unlimited period as a more or less permanent entity. Engaged in roughly a quarter of the world's trade, the EEC has now become a single solid trading bloc with significant dimensions as a competitor of the U S.A. and the U.S S.R. More than half of the trade of the community is amongst themselves.

The member countries are their own largest suppliers of raw materials and the largest markets for their products, since the elimination of customs barriers between the community countries. European industrialists compete freely in one single market. It is no longer possible to take national measures without affecting one's neighbours. The community operates according to the rules established by the Paris Treaty (1951) and the Treaty of Rome (1957) which all member states of the community have signed. These treaties provide for community action in a number of areas such as agriculture, trade, steel, nuclear safety, relations with the Third World and so on. The member countries feel that joint action is more to their benefit than if each state were to deal with its problems alone.

India has been fruitfully engaged in mutually beneficial contacts with individual nation members of the EEC at the bilateral level. Now more non-European nations are trying to get a foothold in the European market. With the emergence of European multinationals and the growing scale of foreign business operations, the influence of European continents. Europe is trying to gain technological advancement for recovering its waning influence in international affairs. Hence, with new technology and mass production. European firms will be able to achieve economies of scale of operation as well as economices of scale of technology. Their competitive strength will increase due to reduction in cost of business will substaantially increase in other production. Moreover, the advantages that developing countries could offer to the Europeans, like low labour costs which act as an incentive for investment will now be easily provided to the community by the relatively backward labour-surplus states like Spain, Portugal and Greece. The member states will also face difficulty in source-tying bilateral aid to the developing countries after the unification.

About two-thirds of India's exports enter the Community dutyfree, either because they attract no duties or are under the GSP,. Textiles, which currently account for one-third of India's exports are subject to import duties. The EEC feels, given the sharp rise in India's textile exports, it has no real cause for complaint. It maintains that the EEC market is one of the most open to imports from developing coutries. When it has acted to limit imports, it is the newly industrialising countries like South Korea, Hong Kong and Singapore which are affected. The EEC agrees to add new products to the list of those which are already the object of export promotion. However, since the funds available are limited, that could only be at the expense of some existing projects. According to the EEC, India ranks fourth among GSP's beneficiaries. What is more, it has been more favourably treated than many of its competetors. The EEC takes the view that GSP is a temporary concession. Once a country becomes adequately competitive for a given product as measured by its export performance-the GSP benefits for the product would get reduced or withdrawn.

Finally, EEC's investment in India has not been in line with its investment in some of the other developing countries. India feels that European participation in Indian export processing zones has not been significant even though 50 per cent of government approvals for foreign collaboration was with Western Europe. Surely, India has not been able to make a thrust in its exports to the community despite the considerable diversification that took place in Indian industry over the last fourteen years since the Indo-EEC agreement was signed in 1974. Unfortunately, the protectionist tendencies of the EEC have warped the scope for non-traditional exports from India. Even the traditional items of India's exports have not fared well. It is time that the forces of demand and supply operate fully for promoting free trade in farm products so that the adverse impact of subsidised agriculture in developed countries does not retard farm exports from countries like India.

However, the ballooning of spending in the form of farm subsidied by Western countries, including the U.S, has not only imposed a tremendous burden on the taxpayers of those countries but it has also damaged the efforts of developing countries in accelerating export of farm products. It is ironical that since world war II many steps have been taken to reduce tariff on industrial goods for facilitating their international trade but little has been done for creating similar conditions for freer flow of farm goods in global markets. This is because of the failure of key trading nations to discipline thei own farm support mechanism and the overwhelming subsidisation of their agricultural exports.

EEC 1992 as a unified market, it is feared, may result in a 'Fortress Europe' and the present non-tariff barriers may become more stringent. However, the present relationship between India and EEC dispesls such fears though India will need to understand that larger prosperity of the EEC consumers will mean that they will be extremely choosy and selective Competition for the EEC market will increase tremendously and India will face tougher competition not only from countries like South Korea, Taiwan, Singapore and Hong Kong but also from many developing countries and more particularly from China. It is time, Indian industrialists made their presence felt within the community by meeting the challenges likely to be posed by the economic integration of Europe. Obviously, the whole gamut of our industrial policy, including MRTP and FERA provisions now needs a thorough review to take advantage of the future large single market that would come into being as also to convenienty face international competition.

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The challenge of widening BOP

K.S. Mehra

THE COUNTRY'S BALANCE OF payment situation continues to be under great pressure despite reduced trade deficit resulting from a sharp increase in exports in terms of rupees, accompanied by a moderate increase in imports. The recent balance of payments data suggest that for the first three years of the Seventh Plan current account deficit is estimated to have averaged two per cent of GDP as against the targetted average of 1.6 per cent for the Plan.

As regards imports in recent years, significant liberalisation has been effected in imports. The broad ojective of this measure has been to stimulate industrial growth by providing easy access to essential imports of capital goods, raw materials and components and thereby achieve technological upgradation, modernisation and international competitiveness. Also because of the expected gap between the domestic availability and demand, oil imports would continue to be a large item in total imports. The rate of domestic production has been slackening in recent years and with the expected hardening of oil prices, the outgo on this account may rise in future. Net invisibles could offset only about 38 per cent of the trade deficit in the first two years of the Seventh Plan as against nearly 60 percent during the Sixth Plan.

The merchandise trade account continues to be in large deficit with net invisible earnings playing a progressively small role in financing this deficit. This is shown in the following table.

It will be seen: net invisible earnings have lost their buoyancy in recent years largely on account of rising payments on foreign debt. Correspondingly, net inflows on the capital account of the balance of payments have played a growing role in financing their trade deficit

Moreover, with the rising level of external indebtedness (placed at more than $ 51 billion), the debt service ratio has shown a rise to 27 percent in 1987-88 compared to 13 6 percent at the end of the Sixth Plan and has exceeded the Seventh Plan projection of 17.6 per cent for the Plan period as a whole. The increase in debt service ratio is due to a greater recourse to medium term commercial borrowing and drawings from the IMF. In the light of past experience certain key aspects of the BOP remains for the next Plan are explained below.

For the Eighth Plan period, as regards imports on the basis of import elasticity with respect to GDP at factor cost observed for the period 1974-75 to 1985-86, an import elasticity of 1 8 could be taken as a

Table 1

Balance of Payments 1980-91 to 1987-88

(Rs. Crores-Current prices)

Item	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Exports	6576	7766	9137	10169	11959	11578	13315	16396
Imports	12544	13887	14913	16039'	18680	21164	22669	25633
Trade Balance	5967	6121	5776	5871	6721	9586	9354	9296
Invisible (net) of which	4311	3804	3480	3608	3849	3630	3524	3004
Private Transfers (Net)	2257	2221	2527	2775	3101	2821	2976	3498
Current Account (Net)	1657	2317	2296	2262	2852	5927	5830	6293

Source. Report of the Economic Advisory Council December 1989

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Loan-waiver: A fire- fighting exercise ?

Umesh C. Patnaik & Rabi N. Misra

The authors discuss the pros and cons of the proposal to write-off agricultural loans upto ten thousand rupees. While expressing fear that such a step may cause harm to economy as a whole, they concede that it may help rural credit management provided it is implemented space appropriately. Otherwise , it may prove to be merely a fire-fighting exercise.

THE NATIONAL FRONT GOVERNMENT at the Centre in ats party manifesto has committed to write off outstanding small loans upto Rs. 10,000/- of the rural poor; the small, marginal and landless cultivators and artisans. Accordingly, the Government has declared to write-off the loans soon, which is likely to cost about Rs. 16,000 crores to the State exchequer. With a view to winning the race many State Governments have also given their consent in favour of such write-off. Now the question arises, how to waive the debt and what should be the criteria for such write-off ? Is writing off debt one of the techniques of rural credit management or merely populist ? Could it in any way solve the problem of overdues once for all or simply remain a fire fighting exercise ?

In spite of easy rural advances, the problem of non-payment of institutional credit by the farmers and rural artisans has become a cause of serious concern for the banking institutions. Overdues of agricultural credit is not new phenomenon The Co-operative banking sector has experienced this long before the Commercial Banks came on the scene.

During the last two decades various studies on default of agricultural credit have been conducted by different agenices. They are NABARD study on the recovery in nine states, Datey Committee on Co-operative dues and Committee of Agricultural Lending in Commercial Banks. Interestingly all the three studies have revealed that in 50 per cent of the cases wilful default is the main cause of poor recovery. The level of overdues is higher for investment credit than for crop loans. Large farmers default more than the small farmers. The recovery of agricultural advances by Commercial Banks is 51 per cent to-day, and it is less than 50 per cent in case of Co-operative Banks. The poor recovery of loans only inhibits the banking system to recycle the funds as non-repayment of bank dues by a section of borrowers would only mean denying the benefit of bank advances to other borrowers. Lack of recovery also cripples the credit institutions' capacity to draw refinance from NABARD (recently NABARD has stopped the agricultural finance to Orissa, as the Government has decided on its own to wirte-off small debts) because eligibility criteria of banks in this respect is now linked with their recovery performance. If the overdues increase out of proportion, the loanable resources at the disposal of credit institutions would dry up and it will restrict the agricultural development of the country. Thus mounting overdues in banks would paralyse the agricultural growth of the nation. The deteriorating situation in non-repayment of loans has in fact, not received adequate attention over the years.

Repaying capacity

The problem of overdues may be either because of inadequate repaying capacity of the borrowers or wilful default in repayment. The repaying capacity is to be considered by deducting the family living expenses from the gross income. In other words, R = I-P, Here, R = Repayment Capacity, I = Income and P = Payment (expenses). When 'I' is more than, 'P' 'R' may be positive. But the question is whether the borrower is actually interested to pay back the debt or not ? If he is interested he can pay the debt in easy instalments, provided such advances have increased his repaying capacity.

Non-wilful default denotes non-repayment of loans due to inadequate repaying capacity, where P } I. Low crop yield, low non-farm income, high prices of inputs, rigid terms of repayment, delay in disbursal of loan, natural calamities etc. are considered as the causes of non-wilful default. But it is seen that very often the borrowers do not use the loan, for the purpose for which they seek it. Such loans fail to

generate additional income and do not help to increase their repaying capacity. Lack of proper end-use of credit may be due to low level of education **which never allows them to understand the significance of it. It may also be due to faulty lending policy** and inadequate supervision of the lending institutions.

Wilful default on the other hand denotes non-repaymnt of loans inspite of adequate repaying capacity of the borrowers. The total gross income of these types of borrowers is high in comparison to their expenditure. Generally big farmers and influential persons of the locality come under this category. They are few in number but have availed lions share in rural lending. They wilfully make default and are not afraid of legal action. They know **well how to manipulate and influence the officials of** the lending institutions. At times even they would not mind to instigate others not to pay.

Pressure on lending institutions

The financial position and profitability of the lending institutions do not permit cancellation of loans. It would erode not only the credit discipline in the priority sector, but also mar the entire banking system in the country. The Reserve Bank of India has observed in its report, Trend and Progress of Banking in India 1988-89 that banks are functioning under severe strain. Very often they yield to political pressures and adhere to impartial parameters in the name of social banking. It has expressed concern over heavy overdues in the priority sector lending and locking of funds in sick insutrial units.

The proposed plan of complete remission would aggravate the situations unless the issue of quality lending is taken care of. Such a step may encourage **more wilful default** and weaken the public onfidence in finanical systems of the country

Solution

The concept of write-off generates a doubt in the mind whether it will contribute in solving problems of small borrowers and whether it will help in any way in rural credit management at the level of lending institutions ? There is every fear that such a scenario may do more harm and even non-wilful **borrowers may turn into wilful borrowers. It may provide impetus to them to avail of another loan and** wait for another Government to come and write-off again.

From the angle of the lending instituti s they have already started grumbling. Their financia health and profitability position is not sound enough to absorb such a huge burden. Ultimately the Government has to bear it with the help of R.B.I. and raise loans from the public. The R.B.I. has already cautioned the Government against such a step and pointed out how it may disturb the entire economic system.

The only point which is worth mentioning in favour of the concept is that, instead of making adjustments in the books, year after year (popularly known as book adjustments in Co-operatives) why not hopefully, t waive them out for ever ?

Writing off debt may help the management of rura credit in the future years, provided it is implemente carefully and judiciously. Otherwise it may prove t be simply a fire fighting exercise and may b perceived as an instrument to achieve the politica ends, instead of doing good to the borrowers of smal means.

Conclusion

In the light of the above discussion, the followin observations may be made to tackle the problem in it right perspective

(i) When the Government is determined t write-off the debts of borrowers of smal means, instead of writting-off the loans of al *small borrowers, in the process*, it may b proper to identify those borrowers whos repaying capacity is nil or negative Simultaneously the lending institution should carefully find out those who are non wilful defaulters. The benefit of the write-o should not pass on to the wilful and habitu defaulters possessing ample repayin capacity and keep the remission to the bare minimum.

2 In the process of write-off, the merit of eac case should be ascertained without an prejudice The end use of loans should be th concerns of lending institutions and this ca be taken care of through adequate monitorin and supervision

(3) The burden of write-off could be share between the lending institutions and th Government, under various poverty eliviatio programmes Where the lending institutio is a losing concern, the entire burden shoul be borne by the Government Issue of som kind of Debt-Relief Bonds is one of th alternatives in the hands of the Governmen to meet the burden.

(4) The leftout cases, the wilful and habitu defaulters, those who possess repayin capacity but are not inclined to repay, coul be managed through compromise for earl reovery of over dues. Since legal proces of recovery is a futile exercise an rehabilitations, particularly in case of tin units amount to further locking of funds, wh not compromise with borrowers? Th compromise may be in the shape of waiver penel interest or waiver of accrued interest allowing easy terms for repayment. Althoug recovery through compromise seems to against the banking principles, probably, it the best and most innovative way to get out sticky advance.

(5) Since, till to-day the non-institution

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Primary capital market: some reflections

Dr. T. Lal

As long as confidence in industrial securities is insecure, surplus funds are bound to be frittered away. The author underlines the relevance of setting up underwriting houses on scientific lines and suggests that select public sector banks be entrusted with the job. He also pleads for evolving an autonomous corporation which will advise on modalities of floating viable concerns. These steps, the author feels, are essential for protecting genuine investors and creating healthy economic conditions.

THERE IS A GREAT UPSURGE in Indian capital arket. It attracts annually capital of approximately s. 10,000 crores. In fifties or sixties it was difficult to :tract annually a capital of even Rs. 50 crores. New ock exchanges have come up during the last ten ears and there is clamour for more exchanges. ıch a situation apparently seems very rosy, onetheless it is fraught with danger. Can it be ıstained ? Is it desirable for the economy ? Is it a ealthy sign ? Is it a real situation or a created one ? Is a skilful or a speculative game ? These are the ıestions which need be answered.

It is true that there is a boom in the primary market. n entrepreneur is able to get capital from the ıarket and is able to add to the productive capacity of ıe country. It is also equally true that those people ho have surplus fund at their disposal have enefited greatly from their investments. A new class investing public believing in speculation has come ɔ and minting money. But is it ture with a vast ultitude of genuine investors ? Lured by the ıblicity in the financial journals if a genuine vestor bought shares of a new company and if e new company could not come up, he loses enormously. There is mini crisis at present which is noticeable in the secondary market, but it will have its repurcussion in the primary market in days to come. Thus, the present capital market cannot be considered a sound one. The basic issues since Independence remain unsolved and need attention.

Underwriting

When a company desires to raise fund from the market, it can either place the securities directly or through some agencies. Only rarely a company places new issues directly. It places through merchant banks or financial institutions. No doubt, the merchant bankers or the financial institutions or the brokers act as Underwriters, but they have seldom discharged the functions of Underwriters in true sense of the term. They actually get away with huge underwriting commission, but in not even a single case in the corporate history of India have they come up with the trading function of the shares which they have had underwritten. They can at best be called an agent interested in selling commission. This cannot be deemed as underwriting function in true sense of the term and in this context it can be said that India lacks an underwriting institution on the pattern of Issue Houses of the United Kingdom, Investment Bank of the United States of America or Credit Banks of Germany. The earlier such an institution is helped to be formed in India like financial institutions for lending long term loans the better for the country and for the corporate sector.

The U.K., U.S.A. and Germany recognised the importance of underwriting of industrial issues to ensure constant flow of long term funds without fixed charges to industries and in that context they developed such agencies which suited their economic conditions. As for example, United Kingdom developed Issue Houses as first grade underwriters. The Radcliff Committee described their functions in very clear terms and observed that:

"Their function is essentially to act as sponsores and underwriters rather than as a source of finance; but the fact that an issuing house stands behind an issue market, it is easier to raise the money and allow a borrower to proceed with his

plans, perhaps even in the advance of the issue, without any fear that he may after all get the full amount he needs."

From the definition given by the Radcliff Committee it is clear that an Underwriting agency is not a lender, or a financial institution supplying long term or medium term finance or an agency to buy scrips of an industrial undertaking as underwriters. Rather, it is an agency which can sponsor an issue or issues and successfully sell the scrips or securities to various classes of investors individuals or institutions in lieu of certain fixed remuneration. In case such an agency does not succeed in its effort, it will have to buy the scrips or securities and thereafter to make every effort to sell them as soon as opportunity arises. Thus, an issue house is not the depository of scrips or securities of a concern or concerns. Its avowed policy is to promote, further and safeguard the interest of investors and to create conditions for the gorwth of such a primary capital maket. In this endeavour it must be ably assisted by an expert staff who may tender advice about the desirability of sponsoring and underwriting an issue with all its implications. In this background an issue house in United kingdom developed and grew from strength to strength with its subsidiaries. The investing public reposes its confidence and does not hesitate to invest in an issue sponsored by an issue house. Similarly, its counterparts grew and developed in the United States of America and Germany.

Defining Underwriting

The Indian Companies Act has not as yet defined 'Underwriting'. It has simply made certain provisions under which discount or commission can be paid by a company. Under section 76 of the Indian Companies Act,

"A company may pay a commission to any person in consideration of:

(a) his subscribing or agreeing to subscribe, whether absolutely or conditionally, for any shares in, or debenture of the company, or

(b) his procuring or agreeing to procure subscription, whether absolute or conditional, for any shares in, or debentures of the company..."

on the fulfilment of certain conditions The important conditions are:

(1) The payment is sanctioned by Articles,

(2) The payment does not exceed 5 per cent of the prices at which shares are issued and 2 5 per cent of which debentures are issued or the amount or rate sanctioned by the Articles whichever is less;

(3) The amount or rate per cent of the commission paid or agreed to be paid in the case of shares or debentures is disclosed if they are offered to the public in the prospectus and if they are not offered to the public for subscription in the statement in lieu of prospectus.

(4) The number of shares and debentures which persons have agreed for a commission to subscribe absolutely or conditionally is disclosed in the prospectus or statement in lieu of prospectus.

According to the above provisions of the Indian Companies Act, modelled on the pattern of the old English Act, a company will pay underwriting commission to any person as individual or an instituation, who besides procuring or agreeing to procure subscription, subscribes or agrees to subscribe any shares, or debentures. In this context a person or an institution, which acts as a lender can very well become an underwriter and earn commission thereon. The only restriction placed on this activity is that a disclosure to this effect need be made in the prospectus or in the statement in lieu of prospectus filed to the Registrar before registration.

If underwriting is to be made meaningful and purposeful in India like other countries of the world the word "Underwriting" needs to be defined. In this connection the definition given by the Radcliff Committee is appropriate and only those individuals or instituations who act as sponsores and underwriters be deemed as underwriters and not such persons/institutions who are mere supplier of funds. Also mere sponsoring and underwriting are not enough. They must act under certain well-defined legal frame-work and therefore, the frame-work needs to be thoroughly examined and worked-out in detail according to the special need of the people and industry of the country by a specially constituted expert body of the Government. As a broader outline it may be said that such an agency must be a company registered in the country with a minimum amount of paid-up capital A limit on devolution on such an agency need be placed, both with regard to quantum and period, i e. after the expiry of such a period such an agency cannot hold the underwritten devolved securities. The appointment of necessary expertise must be made obligatory.

Underwriting houses

In United Kingdom Merchant Banking Houses sponsor and underwrite new capital issues. They have resources. They act as financial advisers to investors, especially the institutional investors.

On the lines of Merchant Banking Houses of the United Kingdom it is proposed that one or two big nationalised Commercial Banks in the public sector be called upon to do the underwriting work. They will be asked to progressively switch on to the exclusive work of underwriting. Commercial banks in the private sector can also come forward to take-up this work. Such banks should establish security analysing cells. These cells will scrutinise the proposals of issuing companies and on their specific recommendation the bank will sponsor and underwrite a capital issue. Such a bank with a network of branches spread throughout the length and breadth

of the country has an advantage to approach investors throughout the country. The insurance companies, the investment houses and investment trusts, the stock brokers, the L.I.C., U.T.I. and the financial houses can act as sub-underwriters.

The stock brokers or investment houses or investment trusts, if they have the resources and the capabilites can also act as underwriters. In India they nave acted as sponsores and underwriters and thereby as suppliers of finance and in this background they can act as underwriters. Now all of them might not be able to act as underwriters and therefore, those who cannot act as underwriters can very well play the role of sub-underwriters.

The high amount of devolution on other agencies, such as commercial banks, insurance companies, L.I.C., U.T.I. and financial house prove that they have not been successful in their work as underwriters. They readily took the balance amount and are always ready to do so. Such a situtation proves that they are just a source of finance and therfore, they should by Act be forbidden from acting as underwriters. They can at best act as sub-underwriters.

Autonomous corporation

It is further suggested that an autonomous corporation– Project Evaluation Corporation– be formed. This may help in the floatation of sound and viable concerns. In the corporate sector many units have come to grief on account of faulty estimates and planning. Many of the failures can be eliminated if new concern gets sound advice in the very beginning. Not only a concern is saved from failure, but the investors are also protected from failure, but the investors are also protected from bad investment. To cite an example, entrepreneurs came forward with proposals for the setting-up of two factories for the manufacture of figured and wired glass in eastern region at Calcutta and in western region at Surat in 1962 Both the companies had foreign collaboration. But they were suffering from excess capacities. Both are now almost defunct. The investors lost heavily. They were the victims of wrong demand estimates. The reason behind such a failure is the absence of an institution which can advise before the floatation of a concern on various factors, such as the demand for the product, the amount of fixed and working capital required for a project, the optimum size of a concern, the capital required for a project, the optimum size of a concern, the capital structure of the concern, the availability of raw material, the existence of home and foreign market for the manuactured product, the likely cost of the product, the timing of floatation, etc.

The newly started concern will have respectability in the eyes of investors if it is cleared by the P E.O and has a greater chance of success. In return for the service the promoter of such a concern will have to pay certain charge to the corporation.

It is suggested that the corporation be set-up as a statutory corporation with its headquarters at Delhi and regional offices at Bombay, Calcutta and Bangalore. The Corporation be given both recurring and non-recurring grant. It will supplement its income by fee from those which come to it for its advice.

A Suggestion

Though the Government may set up a Project Evaluation Corporation, yet entrepreneurs may not approach the corporation for the required advice. In such an evantuality the very purpose of the setting up of the corporation will be defeated. To prevent this and to help the investors from not making distress selling due to fall in value of their holding (equities), the setting up of Corporate Saving Rehabilia-tion Corporation is suggested. It should be an affiliate of the Project Evaluation Corporation, but it should be formed as a statutory Corporation. Its object should be to prevent the value of the shares of those concerns, which are cleared by P.E.O., from falling below a certain level/price. If the price of such share falls below that level, the C.S.R.C. will go on buying all such shares which are offered at or below that price till the fall is arrested.

This will have beneficial effect both on the security market and the Project Evaluation Corporation itself. Henceforward the investor will not be in the danger of losing all his money. if worse comes, as the C S.R.C. will act as a guarantor and the Project Evaluation Corporation will be extremely careful while clearing a project for floatation and this extra carefulness will go a long way in creating a very healthy capital market in India. With the setting up of the Corporate Savings Rehabilitation Corporation as a guarantor, the investors, especially small investors, will come forward to invest money in those concerns which are cleared by Project Evaluation Corporation. To attract the savings of the investors the entrepreneurs will automatically avail of the services of Project Evaluation Corporation and thus such a Corporation would automatically succeed and the purpose for which it is established achieved

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agencies are treated as important sources of fund for the rural sector, the Government could think of waiver of such loans also. Otherwise the exercise of writing-off small loans would remain partial

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Industrial pollution: Causes & suggested remedies

P.K. Ray & Sanjay Kumar

The authors feels that sustainable development can maintain society indefinitely with minimal damage to the environment. The steps involved include: population control, city planning, conservation of resources and optimum utilisation of land. The time is ripe for making an all out effort in this direction, plead the authors.

ECONOMIC DEVELOPMENT, DEVELOPMENT of better health conditions, effective control of epidemics, and effective handling of famine conditions brought a rapid increase in the growth rate of population. The burgeoning population, and major industrial and agricultural transformation have resulted in a massive exploitation of natural resource and pollution of water, air, land and monuments.

During survey of 14 major river systems it was found that major pollution source is domestic and household activity. In industrial activity 70% is contributed by large and medium units and 30% by small scale industries. The domestic and household pollution is critically important and threatens to become worse because majority of the cities and rural areas have no sewerage and sewage disposal system. 43.6% are partially sewered but without any sewage treatment facilities, while 50.7% cities and rural areas have no sewerage and sewage treatment facilities (1971 census) The and sewage treatment facilities (1971 census). The waste water is disposed into the water body with little or no treatment. The ecosystem balance is upset and a chain reaction which could disrupt the entire system is initiated.

A situation peculiar to India is the mass bathing. At specified places, specified days and time during Kumbha mela and other fairs the number of the people increases from hundred to several thousands. People who bathe not only contribute to but also carry infection.

Another source polluting our water bodies is industrial and agricultural activity. India is the 4th largest producer and consumer of nitrogenous fertilizer. With increased use of agro chemicals the run off from irrigated land has been adding a variety of organic and inorganic pollutants. The situation is bound to become serious in view of increased fertilizer use envisaged in 2000 AD. In some regions ground water has already reached excessive levels of nitrate.

The country also produces and markets innumerable products viz. plastics, pesticides, herbicides, synthetic fibres, electrical insulations and many other products for use. In the course of manufacturing synthetic organic chemicals hazardous wastes are produced. Many of these chemicals are completely unique in nature and nature has not evolved any way of assimilating them. Some of these compounds do not have any threshold level in water. air and soil. Some of these are bio accumulated.

The regions with heavy industrial activity are subject to pollution. On the Hooghly estuary alone jute mills, textile mills, tanneries, pulp and paper industries, distilleries etc. are contributing 4.4 x 10 m^3 per day wastes with biochemical oxygen demand (BOD) load of 52 tonnes per day. The domestic sewage on the other hand, accounts for 2.3 x 10 m^3 per day having B.O.D. load of 38 tonnes per day. The bacteriological quality of Hooghly estuary in the bathing ghats was also found to be poor (NEERI survey, 1972-74).

Some electric power plants dissipate their waste heat into the lakes or river as it is convenient and economic leading to increased temperature of water bodies. Thermal pollution depletes oxygen leading to fish death. Warmer water raises metabolic rates and renders fish more sensitive to other pollutants such as heavy metals and pesticides. Thermal pollution can also lead to the replacement of desirable algae by undesirable blue green algae.

Water scarcity also acts as a pollutant. Inspite of adequate rainfall of 4 billion m^3 supply of adequate fresh water to an expanding population, industrial

nd agriculture is becoming a problem. This is going ɔ be worse because for industry alone by the turn of 1st century requirement may increase six fold and 4 fold by 2025.

Air pollution

A brownish haze envelops virtually every city due ı wide ranging inorganic gases, organic compounds, ıorganic metallic substances and soot particles ischarged into the atmosphere by motor vehicles, ıctories, power plants, home furnaces and waste ıcineration plants. The worst culprits are the ıdustries followed by domestic sector and automobiles.

The principal compounds from indsutries along ith their major sources are given in the table below:

llutants	Sources
Sulphur di oxide	fossil fuel, sulphur rich coal, oil refineries
Carbon mono oxide	automobile exhaust, cigarette smoking
Nitrogen oxides	automobile exhaust, cigarette smoking
Sulphate	atmospheric transormation of SO,
Nitrate	atmospheric transformation of nitrogen oxides Metal bearing fine particulates catalyze formation
Organic substances	atmospheric transformationk of organic vapour from fossil fuel and industrial processes to fine particulates
Inorganic metallic substances	leaded gasoline (90%), coal fuel oil smelting of lead
Cadmium	mining, smelting and manufacturing processes
Nickel	manufacturing processes, combustion of residual oil
Beryllium	mining, smelting of Be, coal combustion
Mercury	mining and refining of Hg, combustion of fossil fuel and refuse, smelting of ores
Arsenic	Cu, Zn, Pb smelters, combustion of coal, burning of cotton, pesticides
Vanadium	metallurgical processes, combustion of fuel oil
Chromium	electroplating process, combustion of coal and refuse
Inorganic fibres asbestos	construction, deterioration, demolition of building, erosion of brake lining, clutch facing, variety of products (paints etc)
talc, fibre glass	building material, insulation, consumer product

In automobiles, ideally the gasoline should burn to rbon di-oxide and water but due to low grade fuel, or maintenance (tail pipe blocking, clogged air ters, poorly tuned carburetors, and leaking piston ıg), and lack of traffic planning gasoline molecules e incompletely burned. Under the conditions, me of the nitrogen in the atmosphere combines th oxygen to form nitrogen oxides. Carbon ɔno oxide from incomplete burning, sulphur di ide from sulphur contamination in the fuel and ıd if present as an anti knock additive leave waste pipe and react under sunlight. Two stroke engine buring a mixture of oil and petrol emit carbon mono oxide carbon di oxide more than cars.

Countless cases of eye and nasal irritation, coughing, fatigue and asthma sttacks are known to be associated with air pollution. Lungs are especially affected. The greatest rate of increase is reported for emphysema. Air pollution also has severe effect on plants. It has killed countless trees and shrubs in cities. Many species can no longer be grown in cities and others are severely stunted. City air pollution also contributes to increased pollution of buildings and monuments and corrosion of metals, weakening of textiles and other fibres, deterioration of paints and general increase in dirt.

The tragedy lies in our failure to balance the volume of polllutants within the air space available to receive them. However, it should not be assumed that pollutants can be diluted with large volumes of sorrounding air because some pollutants interact and cause an effect much greater than one would anticipate from the addition of their separate effects. Evidences have accumulated that dilution of pollutants into atmosphere have spread harmful effects more widely as is illustrated by sulphur di oxide leading to the formation of acid rain and wide spread effect of air pollution on plants. The effects of acid rain are observed 100 miles from the pollution source.

Certain pollutants viz. chlorine atoms from chlorofluorocarbons used as propellents in aerosol cans, CCl_4, nitric oxide from automobile exhaust, high altitude air craft and nitrogen fertilizer diffuse into the stratosphere from the lower atmosphere and have damaging effect on the ozone layer by catalytic action. Ozone layer screens UV rays from sun which could cause biological damage to both plants and animals.

Due to rising population, diminishing tree cover as also consequent aridity the suspended particulate matter and carbon di oxide in the atmosphere has increased. The survey indicated the concentration of particulate matter varying from 110-430 u/m³ to about 800 u/m³ in Hyderabad and 1000 u/m³ in Calcutta. Both carbon di oxide and suspended particulate matter have marked effect on the energy radiated to and from sun. More the suspended particles in the atmosphere the more sun rays are reflected and less energy penetrates the earth. 1% rise in the normal reflectivity would lower temperature by 1.7 C. Carbon di oxide on the other hand blocks heat outflow and hence there is increase in temperature (green house effect). Upon striking earth most of the light is absorbed or converted to heat. The heat is eventually re-rdiated in the form of infra red radiation. Water vapours, ozone and organic molecules have similar effect.

Modest shift in temperature towards a warmer or cooler weather dramatically alters the pattern of precipitation. This is likely to have severe disruptive effect on agriculture.

Tackling pollution

It is tempting to call for a moratorium on all further pollution. However, it is simplistic. The task calls for a laborious pathway of developing and implementing both technological and behavioural changes.

The technological approaches to reducing pollution involve trapping waste and managing where it goes, chemically changing objectionable waste to non objectionable form, changing production techniques so that undesirable wastes do not result, discontinuing the use of product or operations that cause undesirable amount of pollution. But these choices are no solutions.

In a competitive market, economic realities dictate that laws and means of enforcing compliance with the laws are necessary Central and State Boards for Prevention and Control of Pollution have beens set up. They have prepared pollution map of the country, identified sources casuing pollution, laid down rules tor industrial licencing incorporating environmental concern and provided for some tax incentives in the form of higher depreciation, higher investment allowances, cess rebate, and no capital gains tax for shifting polluting industries to less congested places. Industries are required to obtain the Board's consent before discharging their effluent into the water body. The ministry of environment and forest was created in 1980 to protect environmental interest of the masses.

To achieve compliance, public pressure can be brought to bear on the government in various ways viz. supporting candidates who share environmental views, through membership in environmental interest groups and through representations for or against any legislation

National planning

No such devices and processes such as filters or convertors, and laws can really solve the problem. The pollution control devices may redirect flow and make it more tolerable for the time being. They do not get at the underlying problem. Likewise laws always involve coercion.

Action which should be given more serious consideration is national planning and policy making in the development of lifestyle, attitudes and behaviour because pollution is the responsibility of the whole industrial society which desires, produces and uses the product. Sustainable development, a development based on equilibrium, rather than development and growth can maintain society indefinitely with no or minimal damage to the environment. The steps involved in such development are population control, city planning, conservation of resources optimum utilization of land, resolving conflicts etc.

A tremendous world wide revolution in thinking about population is mandatory because higher population means more wastes to exceed critical balance. The expansion of population does not expand in desert, side of steep hills and swamps. The resources are depleted leading to intense competition. Whatever resources are available depend more and more on high technology. The consumption of energy and its related cost goes up. The pollution increases and consequently public health cost of pollution per person.

The natural resources viz. food, land, energy, wood, soil and minerals should be used wisely and efficiently We can conserve mineral by recycling, by dispersing with planned obsolescence, by cropping species that make most efficient use of site resources.

Design and development of cities, regions and transportation system should involve much greater proportion of our effort. The cities should be built on sub optimum soil. Intensive land use practices should be given up because if something goes wrong we will have to content ourselves without a life raft. While planning for land use vast tract of land should be kept aside for forests because forests can manipulate water supply and micro climate. They also serve as additional source of income when poor market conditions make it inadvisable to sell other products over a short term. Mono-culture activities should be given up because they make the society vulnerable. We must shift to a society in which there is a constant growth in gross national product and constant depression in the mix based on the use of matter and energy. We should opt for a pattern in which higher proportion of gross national product goes into education, libraries, research, culture communication, entertainment, leisure, health services, medical research and other social services

Many policies might be in direct conflict with one or more of the other policies. For example, cutting of trees at the bottom of water shed immediately adjacent to the river is important if we are consuming water for shipment elsewhere. However, if fish in water shed is important then it is a bad thing to cut trees overhanging water. The conflicts must be resolved by reference to following standards:

1. Each citizen is entitled to a safe, attractive pleasant and healthy environment.
2. Each citizen should be free to better his economic lot by investment of time, energy and talent or capital

To sharpen the judgement of managers, planners executives or politicians computer simulation can be used The latter would provide a realistic and totalistic cost benefit analysis. To generate support for wise policies which would prevent exploitation of masses for personal gains television should be used

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Micro Level Planning

P.N. Sharma

There is a great deal of talk on micro-level planning. Analysing its various facets, the author underlines the need for area specificity of plans to take advantage of local availability of resources. The other ***aspects are: identifying a nodal area around which planning of other sectors will be*** *interwoven and giving proper care to formulation of the plan and its proper implimentation so as to stimulate participation of the planning agent, and the peoplek for the proper impact.*

A NUMBER OF PRE-REQUISITES are necessary for the success of micro-level planning One of them, probably the foremost is the clarity of basic concepts involved in micro-level planning. Obviously, the methodological issues, mechanisms and planning machinery and the procedures to be adopted in any micro-level planning exercise emanate from these conceptual underpinnings. Before having an idea of these concepts, it should be understood beyond doubt that micro-level planning has necessarily to be done in a multi-level planning frame-work. It means that the planning exercise for an areal unit has to act as a co-ordinating link between the areal units below it and above it. These areal linkages would be at the base in a micro-level planning exercise whether it is taken up for a district or a sub-district areal unit such as a block, a watershed in the case of hill areas or a cluster of villages. In order to undertake this exercise the following basic concepts can be delineated ·

(i) Concept of area development;
(ii) Concept of integration; and
(iii) Concept of Transactive Planning

It must be understood that the above concepts are not exclusive to each other, these are the components of the broad concept, which is sometimes also called integrated area development These are inextricably linked with each other and have a sort of in-built continum, which is the basic characteristic of micro-level planning in a multi-level planning framework Let us discuss each of these in some greater details.

Concept of area development

Since micro-level planning is concerned with the development of a particular areal unit, which can be distinguised from its adjoining units and it has its own peculiarities in respect of natural resources, socio-economic structure, environmental status or quality, constraints to development, quality of human resources and other parameters of development, the developmental issues would be specific to the area concerned. The planning approaches and strategies evolved for this area would be distinctly different from other areas. In micro-level planning, uniform prescriptions for development for general **application are not possible to evolve. Therefore,** area specificity is the necessary condition for micro-level planning. Implied in the area-specificity is the element of selective development strategy. It means that each area should have its own development strategy based on its economic specialisation or the economic advantage over other areas, i e., it utilises its resources in an optimum manner and establishes itself on a footing in a particular economic activity better than others. Naturally, it also implies that **priorities of development would differ from one area to another.**

Concept of integration

The concept of integration is also sometimes referred to as the concept of balancing, i e establishing internal and external balances in the micro-level planning exercise. Basically, three types of balance/integration are necessary to be achieved in this exercise:

(a) Sectoral balance or integration

It needs no explanation that the developmental **activities are** usually called sectors of development in **the planning terminology and each sector has to be** planned and developed in such a manner that it makes the desired contribution to the overall development of the area. However, it may not be possible to develop each sector on an equal basis and as mentioned earlier, we have to keep in view, the economic specialisation advantage of an area over other areas for maximising returns from development programmes. It will take care of economic efficiency also. It implies that there has to be a lead sector or a nodal sector around which the planning of other sectors may be interwoven. Again it must be

emphasised that micro-level planning is a multi-sectoral exercise not only because all sectors have to play their role in development but also becuase no sector can be planned in isolation of others Each sector has an input-output relationship should be worked out for the given area development plan It also means that forward and backward linkages should be spelt out clearly otherwise the programme may not succeed. However, before looking for the linkages between different sectors, it would be necessary to check the internal consistency within the sector because there may be many activities/ **schemes within a sector and these should be** consistent with each other. Intra and inter-sectoral integration is sine-qua-non for achieving a synergic effect from different sectoral development programmes. In this kind of exercise the criterion of local relevance of a particular scheme is implied, i.e , whatever be the package of schemes inter-sectoral balancing has to be accomplished in the context of local needs and resources, local people's aspirations etc.

There is yet another aspect, which is implied in inter-sectoral balancing. It is the reflection of national/State or regional priorities. The sectoral plan or package has to be worked out in the background of national or regional priorities since we are working out our plan in a multi-level planning framework.

(b) Spatial integration

Efficient spatial organisation is necessary for delivery of services and development of infra-structural facilities in an efficient and economic manner. Since the resources are limited each locality canot be provided every facility. Moreover, it would not be prudent to do so because every facility/service requires a minimum number of users/consumers to sustain it. Therefore, locational decisions should be taken in such a manner that the facilities/services are evenly distributed over the entire area and these are accessible to each and every section/pocket It would ensure efficiency/viability of the services/ facilities. For this purpose, special spatial planning skills are required which enable the planners to identify growth centres/service centres and central places on which different services/facilities are located on the basis of population threshold to serve the entire area leaving no pocket uncovered

(c) Operational balance

Unfortunately, so far we have not been paying much attention to the operational aspects of planning. Generally speaking, we are satisfied with the plan formulation aspect and much emphasis is laid on the quality of a plan. This is, however, a deep rooted misconception because the term planning is considered to include only plan formulation. However, the fact is that implementation is as much a part of planning as plan formulation. Now, this fact is taken care of and the implementation is included in the basic concepts of micro-level planning.

From the term 'operational balance', one can a once understand that it hints at judging th administrative preparedness for implementation o the plan. Under the operational balance, one has t work out in minute details as to how the schemes an projects proposed in the plan are going to b implemented Is there sufficient money available What is the organisational framework needed fo effective implementation of the plan? Wha management procedures are to be followed ? What i the personnel management ? Are suitable type o **professional people available for execution o** projects ? What are the personnel policies? Will thes policies assist in getting suitable personnel required To what extent decentralisation of decision makin **has been done ? What is the extent of delegation c** powers etc. All these questions should be answere **before implementation of the plan. If the answers ar** in affirmative, green signal may be given to the pla for implementation.

Concept of transactive planning

Since planning is both a political and technocrati process, concept of transactive planning has to b paid due attention. At the political level th relationship between different levels has to b established on an equal basis so that the lower uni can negotiate (or transact) with the higher unit to ge its due share in the resources without any handica of not being given due importance. In this task th people's institutions would be in charge of having continuous dialogue with the higher levels so that th requisite resources and support is assured to th lower units of planning. Obviously, the aspect c popular participation is taken care of in this kind c planning

At the technocratic level the main job will be th matching or integrating the plans of lower areal unit into the higher areal units. This is the concept c **nesting of plans. It implies that by and large a micro-lev** plan should be the replica of a meso or macro lev plan In the nesting of plans again flow of informatio from higher to lower levels and vice-versa is involve In both cases providing feed back is involved and highlights the continuity of planning or reiterative c repetitive planning. In this process, availability c resources and programming have to be matched an vice-versa

By way of conclusion, it may be added that the bas concepts involved in micco-level plannning have t be understood clearly The three basic concepts area development, integration and transacti planning have to be given equal importance, whi formulating a micro-level plan or any plan for th matter It may also be reiterated that all these thr concepts have to be conceived as three basic an inseparable components of the broad concept decentralised planning. The better is the clarity these concepts, the finer would be quality of pla and more effective would be its implementation.

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Urban Water Supply: A case study for optimum self financing

K.K. Pandey

In this article, the author pleads for a rethinking on fixing water rates in urban areas on certain norms. As the financial returns improve, it will be possible to spend more on the infrastructure and upgrading maintenance. He cites the example of the Vishakhapatnam Municipal Corporation and suggests a fair trial elsewhere.

MUCH OF THE PROBLEMS pertaining to the inadequate delivery of urban water supply in our cities are attributed to the financial inabilities of respective agencies to maintain the water delivery at a reasonable level.

The receipts on account of sale of water in our cities are fairly low as compared to the non-plan expenditure on water treatment and distribution. However, before analysing these issues, it is more important to first discuss the institutional framework within which the water delivery to our cities is managed.

The water delivery in our urban areas is managed by two type of institutions. In most of the cases the respective municipal bodies handle the water delivery. However in certain cases the speicalised agencies such as the local level agency like Jal Sansthan in Uttar Pradesh or a state level agency like Karnataka Water Supply and Sewerage Board handle the respective water supply net-work.

Municipal water supply

An NIUA study (1983) conducted for the 8th Finance Commission indicates that on an average the per capita municipal expenditure in 1979-80 on water supply (treatment and distribuion) functions has been as low as Rs. 9 as compared to a minimum requirement of Rs. 24 (as per Zakaria Committee Norms-updated to 1980-prices). In other words, the prevailing levels of municipal water supply seem to be far below the prescribed norms for the smallest size of towns ranging from a population of 5 to 20 thousand people.

It is equally important to note from the same study that the average per capita receipts (Rs. 5) from the sale of water are substantially lover than the existing level of municipal expenditure (Rs. 9 per capita) on the maintenance of water supply net-work.

Specialised agencies

The financial position of specialised agencies that deal with the waer supply maintenance in our urban areas is no more better than the prevailing levels of financing the water supply maintenance by the municipal bodies concerned. For example, the Agra Jal Sansthan which is an autonombus body looking after the water supply maintenance and distribution at Agra (as per U.P. Jal Sansthan Act 1972-73), has spent a sum of Rs. 24 per capita on water supply maintenance in 1986-87 as compared to a required expenditure level of Rs. 63 as per Zakaria Committee norms (updated to 1986 prices). Here again the receipts on account of sale of water (Rs. 15 per capita) are substantially lower than the existing level of expenditure (Rs. 24 per capita)

With this view,k it appears that the agencies responsible for water supply maintenance do not have adequate funds or have not been able to generate enough funds to maintain the levels of water supply as per minimum prescribed norms.

Reasons for mis-match

The mis-match between the expendnure and receipts on account of providing the urban water supply seems to be resultant of five main factors:

(i) Water-supply rates are normally very low.
(ii) Poor Recovery Ratios,
(iii) Free of cost supply to low income housing areas.
(iv) High Proportion of Leakages.
(v) Lack of discipline in water consumption.

The water supply rates in our cities are determined by the respective state governments. In most of the cases e.g. Haryana, Karnataka and so on these rates remain same for the entire state. However, in a few rates vary from town to town. In both type of cases the rates very from town to town. In both type of cases the prevailing water rates are abnormally low if compared with the cost of production as well as distribution. Although, the differential rates are applied for various types of consumers in most of the cases, a substantial variation does not exist in these rates so as to charge more from the different consumers as per their potential paying capacities Except a few cases like Delhi, the graduation in the respective rates in order to differentiate the pricing as per the quantum of consumption does not exist. However, the Delhi rates are relatively lower than the neighbouring states.

As is happening in case of other revenue components, the recovery ratio on account of sale of water also remains fairly low Normally these ratios are recorded as 40 to 60% of total demand.

Another important factor that contributes to the low levels of receipts is the provision of water supply to the low income housing areas such as the slum, squatters and so on. In these cases, normally the supply is made available through public stand posts for which no pricing is applied.

Yet another factor that contributes to the low levels of receipts is the high prportion of leakages in the total water supply. These leakages normally form 30 to 40% of total water supply in our cities as per an NIUA study (1985) on Urban Service Manangement.

Finally, there is a lack of disciplin in water consumption. Not only in case of public standposts but also in individual connections we normally see that there is no disciplin so far as the water consumption is concerned There are two reasons for such misuse. Firstly there is a lack of public awareness and participation with the whole question of maintennce of public services and space Secondly in most of these cases whereby the individual connections are provided for residential uses- the water supply is priced through a flat-rate charging that does not count the quantum of consumption. It is also important to note in this regard that normally the water meters (wherever provided) are not found in a working condition Hence ultimately these consumers ae also charged through flat rate prices In such a context, a lot of water goes waste and remains unaccounted for.

Implications

The mis-match between the receipts on account of sale of water on the one hand and levels of exisiting expenditure and required expenditure level on the other hand has created wide ranging implications on the quality of water delivery in our cities.

The most effective part of this fiscal stringency is the job of preventive and routine maintenance. It involves the job of replacement of water mains which is due in most of our cities-in particular in core-cityk areas whereby the water mains are normally as old as 90 years. As a matter of routine maintenance these mains need to be replaced. However, as a result of lack of funds this work has not been done. In such a context these mains have got a lot of rust and fungus which has substantially reduced their carrying capacity. Ultimately such lack of maintenance lead to a low pressure of supply.

Another part of the preventive maintenance that is not being attended to properly is the job of leak detection. In most of our cities neither the technical staff nor the equipments are adequately available to timely carry out the leak detection work. Both these things required a substantial increase in the current level of expenditure for which our agencies dealing with the water supply maintenance do not seem to be ready to afford. Such inadequacies increase the proportion of leakages and in turn the water pressure becomes further low

Yet another important part of routine maintenance that gets affected by the shortage of funds is the process of water treatment e g. in Agra as per the water conditins the type of treatment that is needed is hyper clorination' However, in practice normal clorination is being done Such inabilities in the treatment process have wide-ranging inplications on the over all status of public health in our cities

Action plan

What needs to be done inorder to improve the quality of water delivery in our cities ? Basically this questions leads to the whole system of financing the maintenance of water supply in our cities. It becomes essential in the context that improving the levels of financing will mean improving the levels of maintenance

Owing to the variations in the pricing of water as also the management pattern a detailed study is needed to identify the ways and means within which the current levels of financing can be imporoved. However a few points can be considered in this regard in order to upgrade the existing levels of the water supply maintenance in our citis:-

(i) The present type of umbrella coverage by water supply rates in respective states does not seem proper While determining the water rates, the variations in the cost of production from one town to other should be taken care of. In other words the agencies dealing with water supply delivery should be given a liberty to decide the water rates The state governments at best can fix a particular range for water rates for different types of uses.

(ii) Efforts should be made to have optimum cost recovery. However, owing to the fact that the water supply is one of the core municipal functions, it becomes imperative to cross-subsidise a substantial proportion of maintenance cost from the over all financial resources of the respective municipal body. Although, at present, the respective agencies are cross-subsidising the maintenance cost from other sources, it is important to note that there is no set pattern as to how much cost will be subsidised and how much will be recovered from the sale of water. It is in this context essential to fix a particular proportion of maintenance cost to be subsidised by the sources other than the sale of water.

(iii) Whatever proportion of the maintenance cost is to be recovered from the sale of water needs to be generated through a proper pricing policy so as to facilitate the low income population to the extent possible. For this purpose the present water rates need to be rationalised. Emphasis should be given on the differential and graduated rates in order to charge the water rates as per the paying capacity of different income groups as also the quantum of consumption.

iv) Special rates should be imposed on large industrial units who consume the water in bulk. The Visakhapatnam Municipal Corporation (VMC) has given a lead in this regard. VMC is charging a very high rate on water supply from large industrial units i.e. Rs. 20 per 1000 gallons. It has facilitated the VMC to keep the levels of receipts on account of sale of water as high as Rs. 488 lakhs as compared to an expenditure of Rs. 197 lakhs on water supply maintenance in 1986-87. Wherever feasible, such types of rates should be imposed.

v) The respective agencies should see that the water meters are provided to all the consumers, otherwise the efforts to rationalise the pricing system will not solve any purpose.

vi) Once the levels of financing are improved, efforts should be made to accordingly upgrade the levels of maintenance. In particular the work pertaining to the preventive maintenance should be carried out regularly. It will in turn improve the carrying capacity of water mains and reduce the proportion of leakages. □

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minimum, in fact it could be higher with recent liberalisation of imports of capital goods and emphasis on improvement of technology. Now taking import elasticity at 1.8, with GDP growth rate of 6 per cent a year import growth may work out to 10.8 per cent a year.

Now in order to provide for an annual growth in imports of 10.8 percent a year, export growth has to be much larger. Realistic alternative projections of balance of payments scenario for the Eighth Plan would suggest that it cannot be financed by the projected level of growth of exports of 12 percent a year and that the required rate of growth in exports during the Eighth Plan will work out to 14-15 of a year if the viability on balance of payments is to be maintained. This is particularly so, as net invisibles may not show any increase in real terms due to operation of various factors.

A volume growth in exports of 14 to 15% a year does not appear to be an easy task in view of the various factors likely to operate on India's export during 1990's. Some of the major factors likely to affect India's export performance are protectionist barrier to trade, EEC integration 1992 and emergence of China in a big way on the world map. On the other hand, our exports even at high level in 1988 are a small fraction of other exporters in the region such as China, South Korea, Taiwan, Hong Kong, and Singapore. Therefore, keeping all these factors into consideration, it will be realistic to assume a growth of 12% a year during the 8th Plan period. But even with this export performance it will not be possible to achieve viability on the country's balance of payments, unless at the same time there is constant monitoring of imports and only selective import liberalisation is allowed on a case by case basis at least for the next two to three years.

Therefore, the policy of import liberalisation should be carried further on selective basis for upgradation of technology and making Indian industry competitive. It is only through vigorous export pormotion and selective import liberalisation that it should be possible to achieve a balance in the external payments situation.

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Plight of saw mill workers: a study

Pramod Kumar Bajpai

The study depicts a pathetic picture of Saw Mill workers. The exploitation of workers is total, says the author. The profession is hazardous but there is hardly anything to fall back upon in case of exigencies. The need of the hour, the author feels, is a welfare legislation and its effective implementation, to give the harassed workers a better deal.

THERE ARE NUMEROUS SAW mills in and around every city. They discharge hazardous effluents in form of wood dust and pose safety problems to the workers involved in cutting and processing of wood etc. Most of the workers engaged in these small scale industries are not cared for by any concernkj for their occupational health problems The workers engaged in saw mills are socially down trodden, economically poor and physically exploited. Also the working and living conditions and conditions of work are very poor The saw mill may be regarded as hazardous industry. At the time of cutting wood. dust particules go directly in mouth and eye of the worker. This is noisy occupation. Recurrent conjunctivitis, breathlessness and skin diseases are the professional hazards. Unfortunately, workers are unknown about this toxical process because of illiteracy and ignorance Even mill owners are not aware of their problems. They are harassed and exploited because they do not get any help from government.

Research

Initially a base line survey was conducted. About 40 saw mills were selected from Aishbagh, Daliganj and Raquabganj areas of Lucknow city through random sampling method and all the available workers engaged in these mills were interviewed.

This is an exploratory research which needs further medical investigation for the verification of its findings. It was a census study covering every available worker. The study is based on the following objectives.—

- To find out economic conditions of saw mill workers
- To find out the nature and extent of hazards among saw mill workers.
- To examine the facilities provided by the employers

Working & living conditions

Poor income is the marked feature among saw mill workers Some of them (40%) are daily wage earners and others are employed on monthly basis Their income may be seen in the following table.

Table-I

Monthly income of the saw mill workers

Monthly income in Rs	*Respondents*	*Percentage*
300 - 400	76	38
400 - 500	49	24 5
500 - 600	47	23 5
600 - 700	21	10 5
700 - 800	7	3 5
800 - above	–	–
Total	200	100

Since bread is the greatest motivating factor behind work, it is imperative to analyse diet patterns in order to find out some relationship between economic situtation and health

Table II

Diet-patterns of saw mill workers

Food items	*Number of respondents*					
	Daily	*weekly*	*Monthly*	*Occasionally*	*Total*	*%*
Bread	200	–	–	–	200	100
Pulses	71	21	–	–	92	46
Rice	20	25	27	–	72	36
Vegetables	25	50	28	–	103	51.5
Milk	–	15	11	–	26	13
Fruits	–	–	–	60	60	30
Meat	–	–	30	20	50	25
Any Other	50	61	20	35	166	83

It is evident from the above table that only bread is available for every worker daily. Most of them are so much tired after 10-12 hours of hard toil that they rarely cook anything other than bread. They eat bread with salt preperation of garlic and coriander leaves which they bring from their homes. Pulses and vegetables are used alternatively. Milk and meat are rare. With such a poor diet, the workers find themselves unable to resist the hazards and they usually suffer from diseases like Anaemia, Asthma Tuberculosis etc.

The diet has a direct bearing upon one's health in the normal course. The data revealed that 36 per cent of the workers are vegetarian as against the 64 per cent non-vegetarians. It is further seen that 36 per cent of the vegetarian workers are of ill-health, while non-vegetarians with ill-health are 64 per cent. Thus it is evident that vegetarian workers have greater resistance against the hazards than the non-vegetarians.

In order to establish relationship between work and disease, it is imperative to know the length of service in the industry. The categorical statement could be seen in the Table-III.

Table-III

Length (in years)	Respondents	Percentage
0 - 1	30	15
1 - 2	43	21 5
2 - 3	57	28 5
3 - 4	29	14 5
4 - 5	27	13 5
5 and above	14	7
Total	200	100

It is seen from the table that most of the workers are in the present job for about 2-3 years Before their association with industry they had no health problem but as soon as they continued their service in the present industry, they developed problems like cough– anaemia, conjunctivities etc.

Accidents

Nature of work in saw mills is very dangerous which involves handling huge wood logs and processing and reshaping it through electrified sharp saw chains. In the course of action workers either crush their hands, fingers or legs or feet and bone fractures and sometimes so badly crushed as to cause permanent disabilities.

The prevalence of accidents among saw mill workers is very large. Thirtythree per cent of the workers have met with one or more accidents and 11 per cent of them have got some help for immediate medical treatment as their injury was minor but this type of interim help depends upon the sweet will of the employer and hardly in any case extends beyond Rs. 100/-. The workers receive no compensation from their employers in case of a permanent disability caused by accident in the course of their employment.

Pathetically enough at times it causes loss of fingers, hands or any other vital part of the bodyk from the sharp teethed saw chains. Muscles are damaged which require a lot of massage and treatment. Muscle problem causes permanent pain particularly when easterlies blow and atmospheric humidity increases. Often rigging wood causes loss of skin from the parts of the body which results into sores due to lack of care and infection. The extent of accidents may be presented in tabular form:

Table-IV

Nature and extent of accidents

Nature of accidents	No. of respondents	Percentage
Crushing hands and feets	20	10
Muscle strain	50	25
Loss of hands or fingers	5	2.5
Sores and skin loss	100	50

Diseases

Industrial workers may be exposed to the risk of poor illumination or excessive brightness. The accute effects of poor illumination are eye strain, headache, eye pain, lachrymation, congestion around the cornea and eye fatigue. Eye diseases are attributed to constant dust coming through the wood.

Noise is the other source of auditory problems. It has two effects on auditory health, firstly causing temporary and permanent hearing incapacity and secondly causing nervousness. fatigue, interference with communication by speech, decreased efficiency and annoyance as during the working period the noise reaches the harmful level of 100 decibels.

It was found that 51.5 per cent of the workers are suffering from eye and ear diseases and if they continue to work under the same conditions, it may impair their visual and auditory capacity absolutely

The workers in saw mills have to work very hard in handling the huge wood logs which result in rapid heart beating to pump blood leading to high/ low blood pressure causing cardio-vascular problems.

On the edge of the saw belts workers push huge wood logs by their chests causing harm to the heart and lungs. Constant inhalation of dust causes pneumo-cerniosis. The data revealed that 25 per cent of the workers are suffering from cardiovascular problems, most of whom (13.5%) are in the age group of 20-30 years.

Dr. B.R. Ambedkar– The man and his Mission

S.N. Mandal

ACCORDING TO DR. AMBEDKAR'S own definition, "A Great Man must be motivated by the dynamics of a social purpose and must act as the scourge and the scavenger of society. These are the elements which distinguish an eminent individual from a Great Man and constitute his title-deeds to respect and reverence." Indeed, he himself fulfilled all the conditions of being a Great Man. His title to this dignity rests upon the social purposes he served and the way the served them.

Dr. Bhimrao Ramji Ambedkar hailed from a poor family belonging to a Hindu untouchable community called Mahar. He was born on 14th April, 1891 at Mhow (now in Madhya Pradesh), where his father was in military service. The Ambedkars originally came from the Konkan region of Ratnagiri district in present Maharashtra. Bhim was hardly two years old when his father retired from service. His mother died when he was early education in an environment of when he was only about six Bhim got his early education in an environment of Bombay underworld Since his school days he realized with intense shock what it was to be an untouchable in India. His marriage took place after his matriculation in 1907 in an open shed of a market. With benevolent help received from the Maharaja of Baroda he passed his B.A. in 1912 His father died early next year. Ambedkar's self-development started with his selection by the Maharaja of Baroda for higher studies in the United States in 1913. He got his M.A. and Ph D. degrees from Columbia University in 1915 and 1916 respectively. He then left for London for further studies. He was admitted there to the Grays Inn for Law and also allowed to prepare for the D.Sc. at the London School of Economics and Political Science. But he was called back to India by the Dewan of Baroda. Later, he got his Bar-at-Law and D Sc degree also. He studied for some time at Bonn University in Germany.

In his struggle for academic excellence and eminence Dr. Ambedkar had not forgotten his real aim in life. He decided to earn his independent living to achieve his mission He temporarily accepted the post of a college professor and was soon called upon to give evidences before a number of Commissions and Committees on political and social issues involving his people He started some journals as the mouthpiece of his views and aims He began life as a barrister in 1923 and became a poorman's barrister. He started his social movement in 1924 through an organisation called Bahishkrit Hitakar Sabha. A historic and momentous event in the life of Dr Ambedkar was his leadership of a march to the Mahad Tank in 1927 to preach to his people the universal law that liberty is never received as a gift, it has to be fought for. Here he proved himself as one of the greatest iconoclasts for all times.

As early as 1930 Dr. Ambedkar declared that no country was good enough to rule another. and it was equally true that no class was good enough to rule over another. He saw a vast difference between a revolution and real social change. A revolution transferred political power from one party to another, or one nation to another. The transfer of power must be accompanied by such distribution of power that the result would be a real social change.

Patriot

Dr Ambedkar's participation and speeches at the Round Table Conference in London during 1930-32 clearly demonstrated his great political acumen and sagacity. He declared that the untouchables in India were also for replacing the then existing British Government by a government of the people, for the people and by the people. Even the hostile Indian Press acknowledged that Dr. Ambedkar was a true patriot of the country. He loved his people more than his life Dr. Ambedkar was so much involved in the destiny of his people that he had lost his personal identity and independence.

The life and struggles of Dr. Ambedkar mark a definite phase in the renaissance of Hinduism and the reorganisation of Hindu social order. His contribution to Hinduism and to Hindustan will be considered greater than that of most of the modern Hindu leaders, for unlike them, he has contributed to the constitutional and political thought and development of the country. His was the cause of Hindu society, the cause of the country, the cause of humanity. One of his books bears testimony to his intense love for the preservation and promotion of the country's culture and tradition. Even his historic declaration of a possible change of religion at the Yeola Conference in October, 1935 was intended to ennoble Hinduism. Dr Ambedkar's conversion to Buddhism shortly before his death in 1956, raised some controversy which has still not subsided. By

this action he, however, chose "only the least harmful way for the country". As he himself said: And that is the greatest benefit I am conferring on the country by embracing Buddhism; for Buddhism is a part and parcel of Bharatiya culture. I have taken care that conversion will not harm the tradition of the culture and history fo this land.

Dr. Ambedkar was of the firm view that the outcaste was a by-product of the caste system, and nothing could emancipate the outcaste except the destruction of caste system. He asserted: If Hindu religion is to be their religion, it must become a religion of social equality.... What is required is to purge it of the doctrine of "Chaturvarna." That is the root-caûse of all inequality and is also the parent of the caste system and untouchability which are merely other forms of inequality. He had also been a consistent advocate for women's liberation through his writings, speeches and Hindu Coade Bill.

On Socialism

Dr. Ambedkar disagreed with the Indian socialist view that equalization of property was the only real reform and that it must precede everything else. He warned the socialists: "If they wish to make socialism a definite reality, then they must recognise that the problem of social reform is fundamental and that for them there is no escape from it ..... They will be compelled to take account of caste after revolution, if not before revolution. He explained how "Religion, social status and property are all sources of power and authority", particularly in the context of India.

According to Dr. Ambedkar, Marx's philosophy was a direction, not a dogma. He was a belivever in State socialism. He wanted agriculture to be a State industry with State ownership of land for being let out to villages in such a manner that there would be no landlord, no tenant and no landless labourer. He, however, wanted to establish State socialism by the law of the Constitution and to see that it is practised through Parliamentary democracy.

Very few people are now aware that Dr Ambedkar was a great advocate of agrarian reforms. He led a peasants march to the Council Hall in Bombay as early as 1938, and was developing into a great leader of the peasants, workers and the landless. He was the first legislator in India to introduce a Bill for the abolition of the serfdom of agricultural tenants. His profound knowledge of labour matters was universally acknowledged and actually demonstrated during his term as Labour Member of the Viceroy's Executive Council from 1942 to 1946. He founded an Independent Labour Party as early as 1937 and prvoved his worth as a great labour leader.

Education for progress

Dr. Ambedkar's realiization of the fundamental improtance of education for the uplift of his people spurred him to establish the People's Education Society in Bombay in 1946. To him, nothing was more sacred than learning. He was of lthe firm view that "Education is something which ought to be brought within the reach of every one". According to him the surest way for the salvation of the oppressed and untouchables lies in higher education, higher employment and better ways of earning a living.

The talent and ability which Dr. Ambedkar showed as the chief architect of the Constitution of India crowned his work as a constitutional authority of world fame. He emerged as a great constitutation maker of our times. As Chairman of the Drafting Committee and the Law Minister, he strove his utmost to incorporate into our Constitution such provisions as would help establish a new social order.

Immediately after completion of the workk of the Constitution, Dr. Ambedkar became busy with the Hindu Code Bill. Inspite of ill health he concentrated all his energies on this Bill which was a right step towards modernisation and democratisation of the Hindu social order. But he finally resigned from the Union Cabinet in September, 1951 in sheer desperation over the failure to get his Bill passed by Parliament.

While speaking over All India Radio (New Delhi) on October 3, 1954, Dr. Ambedkar said, "My social philosophy may be said to be enshrined in the words: liberty, equality and fraternity. Let no one, however, say that I have borrowed my philosophy from the French Revolution. I have not. My philosophyk has roots in religion and not in political science".

His message to his people was: You must have firm belief in the sacredness of your mission. Noble is your aim and sublime and glorious is your mission. Blessed are those who are awakened to their duty to those among whom they are born".

The life of Dr. Ambedkar is a saga of great struggle and achievements. Mahatma Gandhi aptly described him as "a man who has carved out for himself a unique position in society", adding further that "Dr. Ambedkar is not the man to allow himself to be forgotten". In the words of Nobel Laureate Gunnar Myrdal, "All over the world, the memory of B.R. Ambedkar will live for ever as a truly great Indian in the generation which laid down the direction of Independent India."

Courtesy: AIR

Dr. B.R. Ambedkar

R.C. Rajamani

WHEN BHARAT RATNA, the nation's highest civilian honour, was conferred posthumosuly on Dr. B.R. Ambedkar on his 99th Birth Anniversary in April, it was described by the Prime Minister, Mr. V.P. Singh, as a fitting though belated tribute to one of the builders of modern India.

The President, Vice President and other national leaders have all described the Government decision as appropriate, timely and necessary. The only note of regret is that Government waited for 34 years since Ambedkar's death to honour this great son of India who had excelled himself as a many-faceted personality.

Born on 14th April, 1891 in a very poor family of an exploited supressed and tyrannised Mahar community in Maharashtra, Bhimji Rao Ambedkar rose to become the chief architect of the Indian Constitution. Later, he became the Law Minister in the first Cabinet of independent India.

Ambedkar's public life, beginning from his early 20's, spanned a fruitful period of about four decades during which he went through varions phases. He led the struggles of untouchables for securing them the basic human rights of drinking water from public tanks and for separate electorate to the depressed classes. He organised the Independent Labour Party (ILP) and the Scheduled Castes Federation (SCF). He became the Labour Member in the Viceroy's Executive Council in 1942. He was the Chairman of the Drafting Committee of the Constituent Assembly of India and became known as the "Architect of the Constitution."

When he saw that political freedom was in the offing, Ambedkar laid emphasis on adult franchise. Religious awakening and social reform became the cornerstones of his entire philoslophical edifice.

A versatile personality, Ambedkar's hunger for knowledge, his passion for books and his erudition were unique. He distinguished himself in History, Economics, Politics, Law and Constitution. He was a voracious reader and knew seven languages. He described his obsession with books thus: "For a man like me who was socially boycotted, these books took me to their hearts."

His love for the printed word naturally led him to extensive writing on a variety of subjects with depth and vision. Ambedkar's book "Pakistan" drew the attention of many thinkers and politicians. Historians agree that in the book he clearly spelt out the difference between the community and the nation. Mohammed Ali Jinnah read that book and recommended for reading to Gandhiji. The Mahatma admitted that "it is ably written" but remarked that "it carried no conviction with him."

Many differed from his views and conclusions but nobody could deny the candour and competence with which Ambedkar had discussed the difficult and intriguing topic, said a newspaper review in 1945.

Ambedkar's first ambition was to become a professor and lead the life of a student. He was Professor of Economics in Sydenham College, Bombay, On June 1 1935 he became the Principal of the Government Law College, Bombay and remained in that position till his resignation in 1938.

Columbia University, at its special Convocation on June 15, 1952, conferred the Degree LL. D. (Honoris Causa) on him The citation said: "The Degree is being conferred in recognition of the work done by him in connection with the drafting of India's Constitution." The University hailed Ambedkar as "one of India's leading citizens, a great social reformer and a valiant upholder of human rights."

When Ambekdar practised in the Bombay High Court, he being a Mahar, an untouchable by caste, high caste Hindu barristers would not even take tea at his table. Initially he did at even have five hundred rupees to obtain his "Sanad" to practise in the High Court However, he was very liberal in the treatment of his clients.

Visionary

Like other great leaders such as Tilak, Gokhale and Lajpat Rai, Ambedkar also contributed his mite to the enrichment of education in the country. He founded the People's Education Society and started colleges at Bombay and Aurangabad. He did not think that boys and girls should be given the same education. "What is the use of teaching Burke and Shakespeare to girls,"

he asked and opined that girls must be well-versed in home-education. He held the view that the progress of a community should be measured by the degree of progress achieved by women. Significantly, he regarded having too many children as a crime. A visionary, Ambedkar knew the perils the population boom would pose to the country's progress.

As a Cabinet Minister, Ambedkar commanded authority and respect. Though he differed from the Congress party he joined the Nehru Cabinet as a Law Member, piloted the Constitution through the Constituent Assembly, but when he differed with his colleagues, Ambedkar resigned.

As a champion of human rights, Ambedkar saw rights as "natural" and "inherent" in the individual. in other words, the individual has certain inalienable rights. To him, the State existed only to prevent injustice, tyranny and oppression. "Rights are potected not by law but by the social and moral conscience of society," he said and observed," If fundamental rights are opposed by the community, no law, no Parliament, no Judiciary can guarantee them in the real sense of the word."

Ambedkar was a keen student of Economics. He got his M.A. for his thesis on "Ancient Indian Commerce" and M. SC. (London) for his thesis on "The Evolution of Provincial Finance in British India" and D.Sc. for his thesis on "The problem of the Rupee"

His evidence before the Hilton-Young Commission was his important contribution to the discussion of currency problems in India, say historians He spelt out his thoughts on the current Indian problems such as landless labourers, small holdings, 'khoti' system, collective farming, land revenue and abolition of landlordism. It covered nearly four important decades-1917 to 1956. All major political and eocnomic events were touched by him.

Economic views

He thought that the solution to the problem of the untouchable landless labourers was dependent upon the solution of the Indian agricultural problem, or more broadly, the Indian economic problems.

Ambedkar highlighted the lack of justice in basing the assessment of the land revenue on the income and advocated that land revenue must be brought under the income tax provisions.

His book "The Problem of the Rupee" was considered as an instructive treatise on a controversial subject. He wrote that closing of the mints would prevent inflation and disturbances in the internal price level He advocated that the standard of value should be gold and the elasticity of the currency should come from this source

He emphasised that with a gold basis both expansion and contraction should be easy. Obviously, he had shown great scholarship and tremendous amount of hard work in this book. This is evidenced by some of the raving reviews Ambekdar received from the British Press:

The Times (London) described the book as an "excellent piece of work. English style is easy; and his knowledge of his subject obviously very full." Economist (London): "It is a clear and ably writtenk book. Certainly none of the other numerous works on one or the other aspect of the monetary problem have anything like the readability of this tract." Scotsman: His work throughout shows the utmost care and is clearly the fruit of painstaking research. The book is, on account of the originality of its treatment, to be recommended to all students of the finances of India. Financier: "Ambedkar deals with the problem in a very lucid and praiseworthy manner and puts forward not merely its origin but also valuable proposals for a solution, which should be studied by bankers and those merchants whose business depends upon the exchange."

The noted economist Edwin Cannan, Ambedkar's guide, who wrote the Foreword to the book, disagreed with some of the views expressed in the book but admitted" Even when I have thought him quite wrong, I have found a stimulating freshness in his views and reasons."

Ambedkar strongly believed that the fundamental cause of India's backward economy was the delay in changing the land system. The real remedy was democratic collectivism in which economic efficency, productivity and overhauling village economy were materialised, he wrote. This, he said,k aimed to wipe out completely elements of economic exploitation and social injustice. He wanted that there should be no landlord, no tenant, and no landless labourer. He wanted both freedom and welfare, which were possible in his idea of economic realism.

The essential feature of his approach to economic problems, say experts, was his condemantion of extreme views like laiseez-faire and scientific socialism. Mixed economy was the corner stone of his economic ideas. He stood for the progressive transformation of society, removing glaring social and economic inequalities that were due to the capitalist system.

Biographers rightly describe Ambedkar variously as a renowned scholar, distinguished educationist, masterly statesman, powerful debator, daring liberator, authoritative constitutional expert, able adminstrator and fearless champion of the downtrodden. In short, Ambedkar was a versatile genius.

The greatest tribute to this great son of India perhaps came from the gratest of all–Mahatma Gandhi He described Ambedkar as "fierece and fearless."

R.C. Rajamani, P.T.I.
Correspondant

Raleganshindi: A model of rural development

Dr. P.R. Dubhashi

RALEGANSHINDI VILLAGE, 75 kms. from Pune, in Parner Tehsil of Ahmednagar district has come to be known all over the country as a model village. It lies in a drought prone area. It gets an annual rainfall of 10" to 12" Life in this village was "solitary, poor nasty, brusish and short".

The story of the transformation of the village began in 1975 when one. Mr Anna Hazare retired from the army and returned to his native village determined to reconstruct the village life according to Swami Vivekananada's ideals He was inspired by the writing of Swami Vivekananda whose books he happened to read during a railway journey

In his village reconstruction programme, Shri Hazare gave the highest priority to the work of conservation of water through sytematic water shed management on all land– private, common as well as government land through a series of check dams and bunds The intention was to conserve every drop of water The result has been dramatic The underground level of water has gone up. This has facilitated sinking of community wells. Wate from these wells supplied at a moderate rate has enabled the villagers to grow two or three crops every year. The crops include fruits and vegetables which are now even exported to Dubai. The village has totally given up growing of sugarcane which is so water intensive that large quantities of water are consumed by only a few farmers leaving the rest high and dry.

The conservation of moisture on hill slopes and stoppage of indiscriminate grazing has rapidly covered the barren hills with aboundant grass which is now available for stall feeding goat and sheep which provide subsidiary occupation to the villagers.

What has been achieved in this village is in sharp contrast to what is happening in most parts of the country, where thanks to availability of eledricity, country, where thanks to availability of electricity, water is intensively drawn up through electic pumps and bore wells and extravagantly used for water intensive crops. Water is not conserved and hence the water table has gone down rapidly threatening the very basis of nature's life supporting system

Water conservation has to go hand in hand with soil conservation More than two lakh trees have been planted by villagers which has prevented denudatio of soils on hill slopes apart from providing a variety o products like fruits, cattlefeed and fuel.

Community developmen

The same approach of conserving and usin natural gifts as the basis of rural development is see in promotion of community bio-gas plants, some 35 i number, using both animal and human excreta. On of the bio-gas plants is a joint effort of as many as 4 families These, together with solar and wind energ are used for lighting and cooking

These water, soil and energy conservation projec are built by community action.

It is this feeling of working for the community tha has inspired the villagers to help the scheduled cast families in the village in getting rid of the burden of a old accummulated loan of Rs 50,000 With the suppo of the entire village, the scheduled caste familie improved the productivity of their land, increase their earnings and repaid their loans Anothe community project is the construction of a larg hostel building worth Rs 12 lakhs with only a Rs lakh grant from Government. The rest was provide by shramdan by the villagers

Moral dimensio

There is a moral dimension to development work i this village. Politics is strictly shunned. There is n crime and no drinking. The villagers have avoide court litigation. There is no extravagent expenditu **on marriages. All marriages are group Marriage Villagers do without cheap entertainment of films o the T.V. The moral aspect is particularly emphasis in upbringing of children. The educational process such as to emphasise moral values. Early mornin children get up to the tunes of devotional music. A** examy person organises drill which instils disciplin Not a single word of abuse comes from the mouth these children. **Lost Things recovered are prompt returned. The basis of the development work in th village is self reliance. This is not achieved by coercio but by creation of social awareness, and the realisati that the aim of life is to work for others and not f oneself.**

(Contd. on page 3

Cashew: Problems and Prospects

Dr. V. Vigneshwara

From a soil binder to an important Dollar earner: that is the fascinating story of cashew. With growing competition from Brazil and African countries, the share of India in cashew in international market dipped from 1965 onwards. The author suggests some steps, including setting up of a Cashew Board, to bolster production and competitiveness in sales.

CASHEW IS A PERENIAL FRUIT tree grown in the tropical and sub-tropical tracts The cashew tree, a native of South America was introduced into India by the Portugese who planted the first saplings in the West coast during the 16th century to check soil erosion or as a soil binder and afforestation crop. This crop has now become an important dollar earning crop of our country.

The major producers of cashew in the world are India, Brazil, Tanzania, Mozambigue, Kenya and other African countries. The total world production in 1947-48 was 76,000 tonnes and it reached the maximum level of 5,10,000 tonnes in 1974-75, however, from there onwards it has been showing ups and downs. In 1987-88 it was about 3,50,000 tonnes. As far as India's contribution in the world production of cashew is concerned, its share declined from the earlier position while the share of African countries has been increasing over the years.

Cashew is the third commercially important crop in the international trade, which offers considerable scope for improving the economy of our country by generating more employment potential. It provides employment opportunities for more than 2.8 lakh workers in 550 processing factories.

In India, cashew is mainly grown in laterite, red and coastal sands in the states of Kerala, Karnataka, Andhra Pradesh, Tamil Nadu, Goa, Maharastra, Orissa, West Bengal, Pondichery and Tripura. In 1987-88 the total area under cashew was 6,36,730 hactares with a production of 260,261 tonnes. In 1973-74, on the West coast, the total area under this crop was about 210.86 thousand hectares and it increased to 285.61 thousand hectares in 84-85, while on the east coast it was 140/03 thousand hectares in 73-74 and it increased to 222.95 thousand hectares, which clearly indicates that on the east ocast the total area under cashew has increased comparitively more than the west coast In production also, in the east coast states it doubled. As a whole, in India over the years area under cashew and production have improved

Export

The Indian cashew industry has made tremendous strides in its history of exports dating back to 1920. From mere a 45 tonnes in 1923, exports increased to as much as 66,278 tonnes during 1972-73, interms of value it went up to Rs. 2000 million during 1984-85 and in 87-88 it was as good as Rs 3000 million.

India exports cashew kernels to the Amercian zone, European zone, West-Asian zone, Oceanic, South east and Far-East Asian zones in large quantities and to the African.. zone in small quantities. In 1965-66 the American zone (mainly U S.A. and Canada) purchased nearly 28, 619 tonnes of kernels, however it declined to 19,596 in 85-86 and a further fast decline can be observed during 1988-89 to 6230 tonnes (Table-I) The figures in Table-I indicates that our exports over the years have been declining to almost all zones except that of Oceanic zone. In 1988-89 our total exports was 32,143 thousand tonnes which was nearly 17% lower than the exports of 38,598 thousand tonnes in the same period last year.

In the initial years of our exports U.S.A. was the major importer followed by the EEC. India has always been in the forefront as the single largest supplier of cashew to EEC.

India's share

In the world market for cashew kernels, India's share in 1947 was as high as 98.5 per cent and it further increased to 99.97 per cent in 1950's but the trend has declined sharply over the years and in 1978 it reached as low as 40 percent in the glabal market. However, in 1987-88 our share was 64 percent in the world market for cashew. Table-II provides data for India's share in the world market for cashew over the years

Since the domestic supply of raw nuts is inadequate to meet the total internal requirements of the processing factories, we have been importing raw nuts for long. From the beginning, the cashew nut

industry was dependent on raw nut imports from east African countries Imports of 32,000 tonnes in the Forties incresed to over two lakh tonnes in the seventies and declined to 21,000 tonnes in the early Eighties and it once again increased to 42,256 tonnes in 1987-88 Now the import of rawnuts has been carried out by the STC through its subsidiary corporation

We also export cashew nut shell liquid to foreign countries like U.K., U.S.A , Korean Republic, Japan, Yugoslavia and Czechoslavakia etc., Export of cashew shell liquid in terms of value during 65-66 was Rs. 18, 345 thousands and has increased to Rs. 37,552 thousands in 1987-88 and declined to Rs. 25,769 thousands in 1988-89. In terms quantity also it has been declining over the years.

Table-I

Zone-wise Export of Cashew Kernels from India

Q - M.T.

Zone	65-66	75-76	85-86	88-89 (P)
American	28,619	25,727	19,596	6,230
European	19,636	44,546	14,057	16,669
West Asian	374	817	1,165	1,323
Oceanic	1,564	2,413	3,643	6,393
South & Far East Asia	1,072	3,080	2,042	1,529
African	2	1	50	

Source: C G C I & S, Calcutta
Note P = Provisional

Table-II

India's share in the World Market for Cashew

Year	Total (in M.T)	India's Exports (in M.T)	Percentage of share of India out of the total
1947	17150	16906	98 58
1950	19278	19273	99 97
1955	32466	31452	96 87
1960	41578	39436	94 84
1965	58830	53793	91 43
1970	78336	54074	69 02
1975	95964	59174	61 66
1980	NA	36856	-
1985	70596	31608	45 0
1986	67192	37395	56 0
1987	58731	37367	64 0

Problems

Eventhough our exports in terms of value have increasd, there has been a huge fall in the volume of exports especially after the 80's Once we were the major suppliers of cashew kernels for the world market but now our position is shaking and further we are losing in our export earnings, from a near monopoly in early 50's to 50 percent or so in the 80s. Various factors are responsible for this state of affairs.

Shortage of raw cashewnut is the major problem. The cashew industry was initially dependent largely on imported raw cashewnuts. The record growth of exports was haphazard and ill-planned. The real problem arose with the emergence and development of the cashew industry in East African countries who were the main suppliers of raw cashewnuts.

India has been facing serious competition in cashew from Brazil The growth of its production with advantages of vast virgin lands has been remarkable From 25,000 tonnes in 1972, Brazil increased its production to 75,000 by 1982. The pattern of India's exports shows that the American zone accounted for 53 percent in 1965, but only 17 percent in 1982. In 1988 the figures for India and Brazil were 26 and 57 percent in the U.S. market respectively.

Internal consumption in India has been growing annually at a modest three percent in terms of kernels and nearly 57 percent of indigenous production is being diverted for homes use, leaving only 43 per cent for export which shows that cashew trade is not utilising adequate quantity of internal production for export purposes The trade has been able to collect nearly 1.57, 000 M.T. of raw nuts from internal sources in 1976 and thereafter it could not utilise indigenous production to this extent for export performance. The utilization of indigenous production for export purpose has reduced to 43% in 1988 from 71% in 1980 Eventhough the trend of increasing internal consumption is welcome, still it should not act as a deterrent to export It should, on the contrary, act as a complement and supplement to the export performance.

Main constraind

The main constraint in expanding the cashew plantations in most of the states appears to be the provisions made under Forest conservation Act, 1980, especially in A.P , which imposes certain restrictions in bringing the degraded forest areas under cashew cultivation The other constraint is lackk of adequate finances Inter cultivation, prophylactic treatment, fertiliser applications require financial inputs

On the otherhand the quality of cashew kernels & the size of it is far below than that of African kernels which actually retarted the growth of our exports Further, the entire quantity of cashew kernels exported from India are plain, in bulk and cashew in consume

packs has not made much head way. It is very difficult for our consumer packers to enter into the world market with different varities of kerneis since we are not having the modern type of roasting & salting industries, where as these industries are owned by major consuming countries by multimillion dollar companies.

The reintroduction of monopoly procurement by the Government of Kerala has adversely affected the working of many factories in the state and their exports of finished goods. This has also minimised the growth . of private sector undertakings. Again the dual price policy which is in existance in different states is also responsible for lower level of transactions and further made the way for black marketing. Eventhough Government intervention is needed in some aspects when the situation is out of control but things become difficult only when steps like "monopoly procurement" are taken without having regard to the economics of the concerned trade.

Wastage of cashew apple is yet another problem in India in this sector. A major portion of cashew apple is at present wasted in the country except in Goa where it is utilized for extraction of juice for the manufacture of a country liquor 'Feni'

Suggestions

Though India exports cashew. kernels in large quantity it does not produce enough nuts to meet all the processing industries, which comes to about 500,000 tonnes. So as to minimise our imports and to maximise our own production the following steps will be useful.

(a) Cashew should be given plantation status and should be exempted from land ceiling laws. The Government should consider allowing private enterprises to start 100 percent export oriented cashew plantations. This will induce private enterprise to enter into cashew cultivation on a large scale.

(b) Cashew should be given incentives at per with rubber and cardamom. There is a need to set up a cashew board.

(c) the cashewnut industry should consider modernization of the processing systems to reduce the cost processing with a view to obtain competitive price in international market for kernels.

(d) Cashew should be popularised among the farmers in all states as is in existance in the growing states. Planting materials, funds, fertilizers, pesticides should be given at subsidized rates to the growers.

(e) The available large tracts of virgin land should be utilised properly to increase the productivity and improved methods of cultivation should be followed as in Brazil. Research and Development should be done on a vigorours scale.

(f) **Dual price policy for raw cashew has to be taken away by fixing a support price by Government, which can minimise the black marketing.**

(g) **Industry should find out alternative packaging** system to reduce the cost of packaging in consultation with the Indian Institute of packaging.

(h) Rawnut processing industry should simultaneously consider processing of cashew apple as an ancillary unit to promote the use of cashew unit to promote the use of cahew apple which will help quality and quantity of rawnuts. On the otherhand, cashew apple contains a good amount of Vitamin C, fair amounts of easily assimilable sugars and minerals. Its juice has got some medicinal properties also.

Dr. V. Vigneshwara, Lecturer in Economics, Vivekananda College, Karnataka

(Contd. from page 27)

Mr Anna Hazare who has provided leadership to the transformation of this village feels that the transformation brought about in Raleganshindi over a period of 12 years can be multiplied. Already work on similar lines has been taken up in 80 surrounding villages. It can be taken up in other parts of the country as well.

What makes the development process of Raleganshindi a model for rural India are its outstanding features. First, the development is self-sustaining because it is based on conservation and enhancement of natural resources and not their exploitation and denudation. Second, it is based on self-reliance. The village has accepted no gifts or subsidies. Third, it is imbued with deep philosophy of life based on mutual help and co-operation and not self indulgence and selfish pursuit of material possessions.

Dr. P.R. Dhubashi, Freelance Writer, Pune.

Paper industry: an appraisal

Dr. A.Q. Khan & Mohd. Tufail Khan

THE PAPER INDUSTRY IS A HIGHLY capital intensive industry. This industry has been unable to function vigorously for some time now. The main reasons being: a steady rise in the cost of inputs, heavy over heads, paucity of power and adverse impact of control orders over the Industry. Table 1 shows the trend in Indian Paper Industry during the period 1951 to 1986.

Table 1

Year	*No of Units*	*Production (in lakh tonnes)*	*% growth change*
1951	17	1 31	—
1955	na	1 88	43.5
1961	28	3 65	94 2
1965	55	5 37	47 1
1970	56	7 59	41 3
1975	74	8 12	06 98
1976	75	8 75	07 75
1977	75	9 19	05 03
1978	86	10 06	09 46
1979	106	10 47	04 08
1980	121	10 59	01 15
1981	136	11 04	04 25
1982	139	12 18	10 33
1983	222	12 18	10 33
1984	na	13 70	12 47
1985	na	14 63	06 78
1986	288	15 00	02 53

Note. na – Not available

Source: Kothari's Year Book on Business & Industry 1988 (% growth change has been worked out)

Table 2 gives the profitability profile during the period 1980-81 to 1985-86. It is distinctly indicative of the operational unattractiveness of industrial units producing paper and boards. Some important companies have been taken up for the analysis. From the data set out in the table it is apparent that the losses have been suffered during the period under review and the profit after tax has been consistently dismal. The statistical analysis shows that the profitability of these companies during the period under review is not satisfactfory. Most of the major units were also not comfortable on account of continued paucity of raw materials, power bottlenecks and contantly rising costs. The profitability of these companies has also been hampered because of controls over prices and production of printing paper

In order to overcome the problems of the Paper Industry, the first and foremost steps should be to remove the controls over prices and production of printing paper. Regular and sufficient raw materials at reasonable prices should be made available by the government. Various levies imposed on the industry by the Government should be reduced to a sizeable extent and better incentives provided for using substitute raw materials. □

A.M.U., Aligarh, U.P.

Table 2

Profitability profile

	No of Companies Studied	(45)	(19)	(19)	(23)	(23)	(23)
		1980-81	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
1	Net Sales	562 67	537 49	561.37	594 36	718 60	929 26
2	Gross Profit	99 80	84 76	86 51	77.73	101.36	130 40
3	Gross Profit as % of Sales	17 7	15 8	15.4	13 00	14 1	14 00
4	Depreciation	33.82	32 36	31 66	43.44	50 39	65.72
5	Interest	37 21	33 22	38 87	47 88	52.49	61 01
6	Profit Before Tax	30 57	9 58	17 53	8 35	0 33	8 90
7	Tax	15 41	10 17	9 34	17 82	1 2!	2 37
8	Profit After Tax	15 16	0 59	8 19	9 47	0 88	6.53
9	Tax as % of Profit Before Tax	50 4	106 1	53 3	213 4	366 7	26 6
10	Dividends	9 84	9 51	10 14	7 92	7 70	10 60
11	Retained Profits	5 32	10 10	-1 95	17 39	-8 58	-4 07
12	Networth	241 30	198 81	201 71	194 33	238 48	534 94
13	Gross Fixed Assets	713 40	704 56	829 57	726 75	844 73	1216 49
14	Profit after Tax as % of Networth	6 3	—	4 06	—	—	1 2

Source: Kothari's Year Book on Business and Industry, 1988

Book Review

Planning for the Millions by Anand Sarup and Sulabh Brahme Willey Eastern Ltd. 1990, page 183 Price Rs. 30.

A book like "Planning for the Millions" does not make appearance very often. In an age of increasing complexity any attempt at demystification is welcome. The book looks at the dazzling crystal of planning from all facets and, by a large, succeed in reducing them to easy denominators comprehensible by the common man. The authore rightly feel that the planning process is too vital a matter to be left entirely to experts or to government and it should become people's own business. One wishes that they succeed in the mission. Though one is not able to discern any positive signs at present.

Refreshingly, the authors assign to planning a much wider role than is commonly perceived. They find appropriate the reference-frame of the First Five Year Plan describing plans as instruments of development which depend as much upon change in cultural values and social behaviour as upon investment of financial technical and material resources. In the words of the authors: "To create an atmosphere for development, the system has to be remoulded by a re-ordering of social relationships in terms of new values". One does not have to be an anthropologist or a social scientist to appreciate the import of the proposition. As a national concern, development should extend to the entire nation, that is to all classes, sections, castes communities, ethnic groups and other constituents. Yet, even after four decades of planning and planned development, some sections have been left out in the cold. The disparate results are generally linked to two prejudicial forces: the class-mass divide and caste hiatus. There are still crores of families who cannot afford two square meals a day. Secondly some vulnerable sections, like scheduled castes and scheduled tribes are not only caught in grinding poverty but also are decreed by birth to bear contumely and oppression. If the planning process is to operate fairly for all, the prevalent values and attitudes have to change. Purposeful action has to be taken to ensure that the change banishes denigration of the poor and vulnerable sections. To that end, the larger and comprehensive planning approach should cover a much wider arena than at present. It should endorse waging a war through word and deed on everything that inclines to oppression, exploitation, discrimination, contempt and above all to untouchability. It is rightly pointed out that planners have erred in neglect of appropriate action in this direction.

Planning for millions requires on the part of the planners a vast, an almost impossibly empathetic perspective. Further, the mind-boggling diversity of conditions in India calls for a variety of strategies of planning. Sectoral planning i.e. planning for specific-activity areas like agriculture, industry, education, health, is well known. Less known is multi-level planning i.e. planning for different tiers like village, block district, state and national. Allied is regional planning which takes into account similarity of natural resource endowment, topography, climate etc. The third category is planning for ecozones based on further similarity in geophysical features. Like macro, medium and micro water-sheds. In our country. sectoral planning has dominated the scene and has, indeed, produced some good results. We have achieved self-sufficiency in foodgrains but this will have to be qualified by saying that the per capita foodgrains consumption is nowhere near optimal per capita requirement. We have made strides in industry. Thus, while sectoral and multi-level planning will continue to be important, we have also to consciously turn to eco-zonal planning and planning for specific population groups. Without concern and deliberate planning for environment, it is obvious that soon we shall run out of valuable non-renewable natural resources. Similarly, the process of planning will become more and more economically lop-sided and politically unviable if lacks focus on deprived, indigent and vulnerable segments of the population. Vigorous democratic decentralised institutions from grass-roots upwards, alone can internalise their needs and aspirations in the spiralling planning process. Needless to say. any mode of democratic decentralisation should ensure effective and genuine voice of women, landless labourers scheduled castes, scheduled tribes and such other groups.

At one point, the authors say that no country in the world has tried to accomplish the task that we set for ourselves, namely planning in a democratic setting. The observation is significant viewed in the context of the politico-economic turmoil which engulfed the socialist world recently. The book seems to have been written before that. It is too early to assess the total impact what has been swept away, what remains and what has been the new induction. One distinct fall-out, however, is a swing towards western-style economic democracies.Having successfully negotiated subsistence stages economy, the socialist camp seems to be veering towards free market with its consumerist allurements. However imperfact may have been our democratic planning, it seems to be *wearing well in the political system*. Nevertheless, the European episode provides us an opportunity of examining anew assumptions, notions and ideas governing our planning thought-process. The present historical juncture should be seized for introspection, reform and fortification of the planning process.

While the book addresses itself to the common man, an undercurrent of genuine concern and sympathy for the down-trodden flows throughout. Indeed, there is a separate chapter devoted to women titled "The Other Half of India". Deploring the shift of focus from the poor, the exploited and the oppressed in the earlier plans, the authors are distressed at what they call "the eclipse of planning in India" in the Seventh Plan because of fall in ideological commitment by the political system. The scenario looks gloomy. But prescriptions are at hand: Reduce disparities in ownership of land and other assets, encourage participative control of peasants in agriculture and workers in industry, curb profiteering by traders and speculators by establishing direct links between producers and consumers cooperatives. The remedies are known. The real question is how do we apply them. Is it by dismantling the existing economo-political system? If so, its costs in human and historical terms will be high. The authors feel that it can be done by continuing the present system but by renewing its commitment to the basic principles of political democracy and economic equality. Here we go round in circles. But one sure way is to go hammer and tongs to conscientise the masses and draw them into the full awareness of planned development process. They should no longer stand on the ringside in awe of the miasma of the planning process. They should no longer stand on the ringside in awe of the miasma of the planning process.

The great merit of the book is that it is written in a delightfully lucid and deceptively simple style, that conceals deep understanding and mastery over the subject. So much has been condensed into so little. While laymen will find it extremely interesting and useful, experts will find in it a lot to broaden their shrinking twilight perspective. In a word, both the lay and the expert will compete in claiming the book's dedication.

Dr. Bhupinder Singh
Courtesy: AIR

Rural Banking and Development by Dr. S.C. Anand, published by UDH Publishing House, Delhi; Pages 267; Price Rs. 150.

The banking system in India due to its urban orientation, as revealed by the All India Rural Credit Survey (1954), had contributed to hardly about 1 per cent of rural credit. Subsequently, as a result of the nationalisation of the Imperial Bank of India, upon the recommendation of the All Inda Rural Credit Survey Committee (1954), the State Bank of India was set up in 1955 for providing banking facilities the rural areas by opening more rural branches and giving a new direction to rural credit by giving a rural orientation to the banking system in India The National Commission on Banking had also made several recommendations for establishment of rural banks, for the first time in 1972. Subsequently, as a result of the nationalisation of 14 major commercial banks in 1969 and 6 more banks in 1980, the share of the Public Sector Banks in the total outstanding deposits and credit of the commercial banking system went upto 90 per cent. As a result of the thrust given for strengthening institutional rural credit, the number of rural branches of commercial banks have increased from 1833 in the year 1969 to 31175 as at the end of September, 1988, which constitutes 56 per cent of the total branches.

Besides bringing about structural improvements in the sphere of rural banking, a number of developmental programmes comprising land reforms, promotion of trade of agricultural commoddities, development of waste lands, dry land farming, afforestation (social forestry) and development and utilisation of non-conventional sources of energy, etc. have been evolved for the uplift of rural masses. It would, therefore make it imperative that the rural banking system must analyse and imbibe the various other non-banking development programmes to enable them to fully understand their own role, and contribute towards the rural development in a more meaningful manner.

The book gives a comprehensive account of Indian rural economy, land reforms and agrarian relations, agricultural marketing; newer areas of economic development viz. forestry, dry land farming, waste land development; various other programmes of rural development, etc.; rural bank infrastructure and priority sector credit schemes of form and non-form credit and strategies for follow-up and recovery of bank credit, etc.

However, it is unfortunate that such a valuable and interesting book is not having any reference or Bibliography, inclusion of which would have certainly enhanced its value manifold. The Publishers deserve to be complimented for bringing out this book in a hard cover. However, as the book is very highly priced, it would remain out of reach of common students rural entrepreneurs and agricul agriculturists. Nevertheless the book will be useful as a reference book which gives at one place the present day scenario of rural banking system in the background of various rural development programmes and would be useful to the Banks, planners and researchers and all others who may be associated with one or the other aspect of rural banking system

Dr. Mahendra K. Pandey

Industrial Relations and Labour Laws by Dr P.C. Tripathi and Dr.C.B. Gupta Price Rs. 45.00 Published by Sultan Chand & Sons, 23 Daryaganj New Delhi First Edition 1990.

This is a new book of 680 pages on the subject of industrial labour relations and legislation Co

authored by two professors, viz. Dr. Tripathi, Head of the Department of Business Administration, Mohan Lal Sukhadia University, Udaipur and Dr. Gupta, Head of the Department of Commerce, Sri Ram College of Commerce, Delhi University, the book consists of two separate sections A and B. Part A dealing with industrial relations covers 10 chapters on different topics like trade unions, collective bargaining, grievance, discipline, wages, welfare, social security and workers' participation in management etc. By including a write-up on industrial relations system in UK and USA in Chapter 10 the authors have tried to generate interest in readers for comparative system study in labour management relationship. Data and statistics in this part of the book need updating as more recent data are available. Inspite of this limitation Part A bears the imprint of scholarly treatment and lucid presentation of both theoritical and practical aspects of dealing with industrial labour in India.

The second part of the book is devoted to Labour Laws; main provisions have been reproduced with the addition of suitable explanations here and there. Finally, it is a dependable text book for students at Post-graduation level and a ready-reckoner for Labour Officers. Even general readers are expected to get a better feel of labour legislation measures and their applications for maintaining harmonious labour relations in industry based on mutual goodwill and confidence.

M.K. Ghoshal

(Contd. from page 22)

Saw mill workers inhale dust which passes through mouth, drink polluted water, eat contaminated food in the dusty atmosphere and take tea and other eatables without washing their mouth. The dust has been found silted on their teeth and gums making them yellowish or half-black or brown. This results into teeth and gum problem among the workers. It was found that 34.5 percent workers of saw mills are suffering from teeth and gum problems

There are two types of dusts-inorganic and organic, soluble and insoluble. These dusts are ingested by the workers during the work as well as through the use of cigarettes, food and other eatables with their contaminated hands and cause gastro-intestinal problems after reaching the general blood circulation. 25 per cent of the workers have been found suffering from such problems.

Excessive body strain due to incessant working with huge wood logs often cause muscloskeletal problems. It was found that 37.5 per cent of the workers of saw mills are suffering from such problems

Vibration specially in the frequency range of 10-50 Hz may be encountered in work with heavy wood logs and tough handling. Vibration usually affects the hands and arms. After some months' exposure the fine blood vessels of the fingers may become increasingly sensitive to spasm. It often results into part paralysis and fainting of the person. It was found that 12 per cent of the workers in saw mills suffer from nervous problems.

Ingestion and inhalation of dustry chemicals and frequent inuries to genitals while handling heavy wood logs results in genito-urinary problems such as hernia, pain in the genitals, blood in urine etc. The study reveals that 7 per cent of the saw mill workers are suffering from genito-urinary problems.

Ironically enough, neither any safety belts, nor any medical care have been made available to workers in such a dangerous and physically hazardous industry. Rather they are discharged from their job as soon as they are not able to render their services on account of physical ill-health, caused in course of their employment.

Workers don't know about their rights, except wages. They have to sleep either on wood logs or on the land. There is no shelter where they may take rest properly

There is the need for a piece of legislation which could protect the interests and health of the workers, providing them adequate safety measures, and protective clothing and training. The services of the workers should be regularized and first aid medical facilties should be provided in every saw mill. Since it is a hazardous industry, welfare and life of the workers should be ensured adequately

Pramod Kumar Bajpai,
Research Scholar, Deptt.
of Social Work Lucknow.

(Contd. from page 15)

It can provide us with a tool for developing a political mandate for rational social decision making.

The experiment will require a type of patience not yet exhibited by any civilization. But it should be done right now. Otherwise we may be planting highly destructive time bombs. Once the fuse is lit it may be quite beyond our capability to control or stop

P.K. Ray and Sanjay Kumar,
Industrial Toxicology Research
Centre, Lucknow.

Indigenous cancer therapy machine

A highly sophisticated machine for cancer treatment has been developed under a Technology Development Project of Department of Electronics. Technically known as 4-6 MeV Linear Accelerator (LINAC) machine, it has been successfully installed at PGI, Chandigarh and is being used for the treatment of the patients. Three premier institutions, namely, Central Scientific Instruments Organisation (CSIO), Chandigarh; SAMEER, Bombay and Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, collaborated in the development of this machine under the guidance and funding of Department of Electronics. The machine meets all international specifications and plans are afoot to exploit the technology commercially. A higher energy machine with Photon and Electron Beam capability is also being planned for meeting additional requirements of radio therapy.

New cement technology

The Indian Institute of Technology, Kharagpur has developed rice husk based processes for special cement and Silica products. The cement process has been patented and given to NRDC for commercial exploitation. Already. the Silica products have been commercialised by Unique Silica Development in Cuttack.

New Scheme

A new scheme of examination which was introduced in the Kendriya Vidyalayas from March 1990 examination is now proposed to be introduced in all other Central Board of Secondary Education (CBSE) affiliated schools from March 1991 examination. Under the new CBSE scheme of studies for the 10th class, Science is taught as an integrated subject comprising physics, Chemistry and Life Sciences. Students have to appear for only one Science paper at the 10th class examintion. Under both the old and new CBSE schemes for examinations in Science, students taking the 10th class examination do not have to qualify in all the three Science subjects separately for passing the examination.

Wildlife Corridor

India and Bhutan are working for creation of a Wildlife Corridor along Indo-Bhutan border. It will enable free passage of animals between the two countries. The forestry border along the foothills of Bhutan has been subject to extensive degradation due to deforestation, poaching, over grazing, mining, encroachments, forest fire and land use changes. This degradation has led to fragmentation and isolation of wildlife habitats. Among the many animals found there are Asiatic elephant, tiger, gaur, Asiatic buffalo, Samber, one-horned rhinoceros and many species of reptiles and turtles, rare golden langur and pygmy hog.

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YOJANA: 33 Years ago

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The Cyclist is always right

Our friend of the cycling community does not content himself with merely creating mobile road blocks– he has other ways of disturbing traffic. Five or six people can ride on a tonga or a rickshaw so why cannot the same number pile on a bike! After all this is New India, and we're all part of one big, happy family. So off they go, weaving an erratic course and missing cars and buses by a hair's breadth. Father is puffing with his exertions but gallantly pedals away, while brother and sister ride pillion hugging each other gleefully. Mother is perched dangerously at the back, holding baby with one arm and coyly veiling her face with the other. Not the least intriguing part of this feat is how they will all get down at the end, provided they haven't fallen off in the way.

It is said that time is of no consequence in the East. If you are a motorist and are very keen to reach some place in time, the easiest way is to leave the old thing and take to a cycle or just walk.

Converting by Example

What goes to make up a successful gram sewak? Let us take a look at Shri Mahesh Pratap Singh, Gram Sewak in the Bihta Community Project Block Sohawal, District Satna, Madhya Pradesh. He brought to his work at Bihta the sympathy and understanding that comes naturally to the son of a farmer. But mere understanding is not enough. Mahesh Pratap had also the necessary experience of dealing with various village problems having worked as a demonstration Jamadar in the Agriculture Department.

There were two items that claimed his immediate attention, in the village-repairs to the roads and provision of drains. The first snag, Mahesh Pratap discovered, was the complete indifference of the villagers to any self-help approach. To them these items were the concern of the Government and not theirs. Mahesh felt that the situation called for drastic action. He donated Rs. 50 or half his month's salary for this work. The gesture worked and rightaway other contributions poured in. The drains were built and the roads repaired in a short time.

Mahesh did not stop there. First he built a model well for the village with the help of the villagers. Then he gave the villagers an idea of a model house by building one for himself which had a patch of lawn, flower-beds and an attached kitchen garden. The villagers noted the improvements. A building for the village basic school and a recreation centre were his next achievements.

He then turned his attention to the distribution of fertilizers and improved seeds. In the very first year the demand rose to 300 maunds of fertilizers and 400 maunds of improved seeds: the largest demand for any circle in that area ! Mahesh Pratap then persuaded the villagers to donate land for the construction of a canal from the existing irrigation tank. The village now has a co-operative society with 104 members and a working capital of over Rs. 11,000. That is how he taught the villagers the lesson of self-help.

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Development Diary

Concession to unemployed engineers

Unemployed engineers and their societies have been granted extension in respect of award of works in the Central Public Works Department. The concession is applicable to those who have lost their job and those who have not secured employment. If no registered labour co-operative society takes up any particular work costing upto Rs. 20,000/-, the concession offered to it will be given to unemployed engineers or their societies. For works costing Rs. 20,001/- to Rs. 1 lakh, a price preference upto 3% will be given. There is no need for earnest money. But unemployed engineers or their societies have to give necessary bank guarantee. The concesion will be available till 28, Feb. 1991.

Record earnings from knitwear exports

Knitwears made in India are popular abroad, specially in the Soviet Union. They are being exported for the last two decades. Export exchange earnings from knitwears during 1989-90 was Rs. 782 crores. This is Rs. 291 crores more than in the previous year.

Overall improvement in Railway operations

Indian Railways have maintained the trend of higher productivity set during the first four years of the Seventh Plan. The year 1989-90 marked a substantial increase in freight movement for the fifth year in a row. Railways moved originating revenue earning traffic of 311 million tonnes in 1989-90 against 302 million tonnes in the previous year. The freight transport output was over 230 billion tonne-kms. as against over 222 billion tonne-kms. in the previous year. 80 new trains were introduced and 59 trains extended to longer destinations. The frequency of 20 trains was increased. Computerisation of passenger reservations were extended to Secunderabad, Ahmedabad, Bangalore, Lucknow and Bhopal. Work on modernisation of 67 major stations all over the country is in progress. Water coolers were introduced in second class coaches for supply of drinking water. The Chittaranjan Locomotive Works exceeded the target of 144 locos. The Diesel Locomotive Works, Varanasi achieved the target of 140 locomotives. The Integral Coach Factory at Madras also realised the target of 925 coaches. However, the Rail Coach Factory at Kapurthala produced only 175 coaches against the target of 205.

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YOJANA seeks to carry the message of the plan to all sections of the people and promote a more earnest discussion on problems of social and economic development. Although published by the Ministry of Information and Broadcasting YOJANA is not restricted to expressing the official point of view YOJANA is issued every fortnight in Assamese, Bengali, English Gujarati, Hindi, Kannada, Malayalam, Marathi, Punjabi, Tamil, Telugu and Urdu.

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Approach to the Eighth Plan

Mahesh Prasad

The Approach Paper to the Eighth Plan has made employment as the "Central thrust" of the Plan. It also lays. stress on decentralisation of the planning process, on the rural sector, on development of human resource and on environmental protection. What, however,distinguishes the approach to the Eigth Plan from earlier approaches is the reduced emphasis on growth rate of GDP as the strategy of development. The emphasis, says the Approach Paper, is on the content of development, than on a growth rate per se. Growth, it says, "should be such as to provide meaningful work, a reasonable minimum standard of living and essential social amentities to every one as speedily as possible."

The Approach Paper has been framed by the reconstituted Commission in the light of the 'mandate' given to the National Front Government by the people. Their mandate, says the Approach Paper, "calls for an alternative model of development within the framework of national planning" The kind of development the country has had so far had led to growing disparities and inequities, a felt sense of injustice and oppression. "This, in turn, has produced widespread discontent and unrest that have fanned the forces of violence and disorder" There is, "urgent need to remove the sources of discontent and unrest by attending to unemployment, illiteracy, ill-health and decline in living conditions of the poor and vulnerable sections." The development strategy in the present context must go beyond the declamations about "growth with justice." The development patterns and processes have to be explicitly oriented to enabling everyone to have adequate employment which afford at least the minimum desirable requirement of food, clothing and shelter and have access to educational, health and child care and other related services.

While diluting the emphasis on growth rate of GDP in the planning process, the Approach Paper has not altogether given up the concept It says the growth rate should be such as to provide meaningful work, reasonable minimum standard of living and essential amentities to every one as speedily as possible. It should be more sensitive to the disadvantaged and vulnerable, while also making for a more widespread diffusion of the benefits of development across regions and classes than has been achieved so far It should moreover be sensitive to our responsibility to the future generations to avert irreversible damage to the environment and specially to the resource base of the poor. Keeping all these factors into mind, the Commission has fixed a growth rate of 5.5 per cent for the Eighth Plan. The growth rate depends upon a step up in savings rate to 22 per cent of GDP from its present rate of 20.5 per cent, an inflow of foreign resources of the order of 1 5 per cent of GDP and a minimum 12 per cent growth in exports. These targets seem realistic considering that the Seventh Plan is estimated to have achieved a 5.3 per cent growth in GDP. It may not be out of place to mention here that the Seventh Plan Approach had gone widely off the mark in assuming a savings rate of 26 per cent, while the Seventh Plan has ended with an achievement of a 20.5 per cent, It is possibly keeping such a distortion in view that the Commission has proposed to closely monitor the performance of the economy, particularly in regard to savings rate and capital use efficiency and to make appropriate adjustments at the time of the mid-term review of the Plan.

Central task

The Approach Paper says the Plan "will seek to give operational content to the commitment to guarantee of the right to work to every citizen through appropriate development programmes." The central task, according to the Paper, would be "to expand opportunities for productive employment at rising levels of real wage rates and income at a sufficiently rapid rate to absorb increment in labour force due to population growth and also to progressively reduce the present level of open unemployment and under-employment." The paper sets a target to achieve on the average three per cent annual rate of increase in employment over the next decade. It says for achieving full employment, the pattern of investment has to undergo substantial shifts from high capital/labour to low capital/labour activities, except in well identified areas of infrastructure, key intermediate manufactures and some high-tech industries. It says there are many sectors or sub-sectors in which the pattern of investment can be so re-ordered as to maximise the use of labour. In rural areas, local area plans at the village or panchayat level will first aim to expand employment, production and incomes i

various activities. The focus would be on ensuring socially gainful work rather than relief work, which ad-hoc employment programmes often degenerate into. Irrigation, which adds substantially to rural employment opportunities would be a key ingredient of agricultural and rural development programmes

The Approach Paper envisages existence of elected panchayats, responsive and responsible to the people as a first step in the generation of employment The challenge of "right to work", it says, cannot be met just with the resources of the Central and State governments. There is need to create conditions for local population in each village to contribute to development resources. Experience shows that an important incentive is that the local contributions are utilised entirely and palpably for the development of the contributors own village, according to the priorities set by them and under their own supervision

To mitigate the growing rural-urban dichotomy and to ease social tensions associated with migration, the Paper evisages the development of small and medium towns. Similarly, the Paper lays stress on housing, which has significant employment potential, both in itself as well as in its backward and forward linkages. To the extent and till such time as employment generated through the normal development process does not adquately meet the requirements of those seeking work, a special programme of guaranteed work to the unemployed would be necessary the Paper says.

Higher rural outlays

The Approach Paper also envisages that the proportion of development outlays on schemes benefitting the rural population must be significantly raised, the target being 50 per cent While greater investment of resources in rural development programmes will help, far more important is a conscious effort to gear such investment to expanding and diversifying the productive base of the rural economy. The Paper attaches crucial importance in local area planning to Panchayati Raj institutions and calls for revitalising them by making periodic elections to them mandatory Calling for overall acceleration in the growth rate of agriculture, it says the required expansion in output will need to be achieved through greater attention and resources being devoted to the development of rainfed tracts, which constitute 70 per cent of the country's cultivated area. This would be done by making much more effective use of irrigation facilities, both existing and newly created and maintaining a continuous flow of economically viable improved techniques. Attention needs to be given to encouraging as widely as possible, diversification of agriculture into higher value-adding and more remunerative enterprises, such as horticulture, sericulture, poultry, fishery, dairying and animal husbandry.

In the social field an attempt would be made to raise the status of women by bringing them in the mainstream of national development. The Approach Paper also calls for a strategy of development of Scheduled Castes that effectively liberates them from their disabilities For Scheduled Tribes, it suggests that programmes be devised with their involvement in the light of their own order of priorities to remove economic, educational and social disabilities to which they are subject.

Higher literacy rate

The Plan would aim at attainment of 50 per cent literacy rate in the next five years and elimination of illiteracy by the end of the next decade. It would also endeavour to improve the coverage and quality of nutritional and health services, specially for mothers and children and bring down sharply child mortality rate along with birth rates.

Expressing fears that at the current rate of growth, the country's population would exceed one billion by 2000 A D , the Approach Paper says the strategy of population control and family planning would need to focus on women's status, female literacy and control of infant mortality, as against the emphasis on contraceptive measures so far. About environmental protection, it suggests that there should be more rigorous scrutiny of the environmental impact of every development scheme and ecologically sustainable development accepted as an end in itself.

Alongside efforts to accelerate agricultural progress, rapid industrial development will continue to be the major concern of planning. Industrial policy reforms will mobilise the country's productive forces and entrepreneurial energies by reducing bureaucratic controls It will take into account regional diversity in resoures endowment and provide for balanced regional development There will be special focus on village and small scale industries. A continuing effort would be made for technological upgradation. Efforts would be made to expand infrastructural facilities as well as to supply key intermediates and capital goods to meet growing requirements. The new policies would also involve adequate production of mass consumer goods, particularly with labour intensi[illegible]nufacture with assured supply of raw materials, credit and marketing facilties.

The Approach document stresses the need for enhancing exports and of efficient import substitution and says for this it is necessary to improve the efficiency and competitiveness of the Indian industry For this, it says, greater thrust would have to be laid on upgrading the technological level of basic intermediate goods and capital equipment, increasing the competitiveness of Indian industry in world export market by providing access to relevant technology, equipment and material and exposing indigenous producers to external competition, specially in segments where there is a high degree of concentration in ownership or monopolistic market structure.

Strict economy

About fiscal imbalances in the Indian economy, the Paper calls for enforcing strictest possible economies in government expenditure, particularly of a non-developmental nature, reducing dependence on borrowings (internal and external), generating more resources through among others, better tax collection, plugging leakages, larger enterprise surpluses and an overall review of the subsidy component of the public expenditure and its social impact.

The Commission is conscious of the difficulties facing it in bringing about social transformation through local level area planning as the institutional framework (by way of Panchayati Raj institutions) is not yet in place in most parts of the country. The impact of the proposed changes cannot, therefore, be predicted with precision. It also says that considering the pressure on resources and the need to contain inflationary pressures, the extent of investment on social infrastructure is not amenable to dimensional change in the immediate future It is for this reason that Commission has decided on a moderate rate of growth. In the light of the previous experience in generating employment in previous plan periods, the generation of employment, particularly in rural areas may not be an easy task Moreover, a three per cent annual increase in employment over the decade is to be viewed in the context of a high rate of 2.5 per cent growth rate of labour force per year. Nevertheless, as is apparent the Approach Paper represents merely the broad thinking. How exactly these ideas are to be concretised in the form of actual schemes would become known only when the Eighth Plan is formulated. Ultimately of course a lot will depend on how the Plan is implemented for each of the Plans after the Fifth Plan have laid stress on employment and ati-poverty programmes for which a number of schemes, such as IRDP, NREP and RLEGP were devised. □

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Approach to Eighth Plan 1990-95

Salient Features

1. Employment generation is the "central thrust of the Plan" The Approach Paper envisages a three per cent annual rate of increase in employment over the next decade.
2. Commitment to transfer Planning and implementation to local democratic institutions with the resources necessary for the purpose.
3. The growth rate in GDP projected at 5.5 per cent.
4. Savings rate to be stepped up to around 22 per cent of GDP during the Plan period.
5. Net inflow of foreign resources assumed at 1.5 per cent of GDP.
6. A minimum 12 per cent in volume growth in exports envisaged in a bid to reduce dependence on external resources. Efficient substitution of imports also envisaged.
7. Significant increase in development outlays on schemes benefitting the rural population, the target being 50 per cent.
8. Overall acceleration in the growth rate of agriculture with greater attention to the development of rainfed tracts, which constitute 70 per cent of country's cultivated area.
9. To improve the efficiency and competitiveness of Indian industry for enhancing its contribution to exports.
10. To ensure a minimum standard of social services and economic infrastructure all over the country.
11. To attain 50 per cent literacy rate in five years and elimination of illiteracy by the end of the decade.
12. To enforce the strictest possible economies in government expenditure, particularly of non-developmental nature.

Super and Special 301 and India

M.K. Ghoshal

The US assessment that India's tariff structure is hampering bilateral trade is far from true. India's policy of gradual economic liberalisation has in fact led to a 15% growth in bilateral trade and exports to India from US has gone up by about 65%. India's investment policy is also not restrictive but selective. It can, however, be pointed out that the U.S. market itself is protected by regulatory measures which now cover 23% of US imports as against 12% in 1980.

THE SUPER 301 CLAUSE of the US Omnibus Trade and Competitiveness Act 1988 directs US Trade Representative (USTR) to identify US "Trade Liberalisation Priorities"

Priority practices which, if eliminated, would significantly increase US exports, and

Priority Countries taking into account the number and pervasiveness of significant trade barriers

The objective of Super 301 is the elimination of specific practices which, in addition to being serious barriers of trade, are indicative of broader area of concern to the global trading system

On May 25, 1989 US Trade Representative (USTR), Ms Cala A. Hills designated Brazil, Japan and India as "priority countries" for negotiations under Super 301 provision of US Trade Act of 1988 The "Priority Practices" which attracted the 301 provision differed from country to country. Brazil was named because of its quantative import restrictions and the list of import prohibitions. Japan was listed for its restrictive policy relating to super computers, satellites and wood and paper products.

Why India ?

The US Government named India because of trade related investment measures (TRIMs) and trade hampering practices in the field of insurance. India was designated a priority country specially because of ceilings on equity ownership, export commitment requirements and the phased manufacturing programme imposed on foreign direct investors and because US insurance firms are unable to enter the Indian insurance market. The specific objections are listed below :-

- Government approval is required for all new or expanded foreign investment in India. Approval is conditional upon a number of criteria including requirements of foreign equity participation
- Where approval is granted, the government often requires investors to use locally produced goods in the items they produce in India rather than allow the import of quality and cost-effective products
- Some investors are also required to meet export targets. Such "performance requirements" burden foreign investors and result in significant trade distortions
- Private insurance companies are not permitted to sell insurance in India.

Special 301 provisions of the US Trade Act 1988 call for development of overall strategy to ensure adequate and effective protection of industrial and intellectual property right matters. In view of the on-going negotiations and progress made, no country was identified as "Priority countries" under Special 301 Instead, the Administration singled out 25 countries whose practices deserved special attention In addition to a "Watch List" of 17 countries a "Priority Watch List" of 8 countries was drawn up. India was placed on the priority watch list along with sever other countries viz Brazil, South Korea, Mexico China, Saudi Arabia, Taiwan and Thailand because o deficiencies in intellectual property rights (Patent Copy Right and Trade Mark) protection. US expect India to (a) remove discrimination against the use o foreign trade marks, (b) improve access an distribution of US motion pictures, (c) improv enforcement against piracy and (d) include a intellectual property annex to the bilateral scienc and technology Agreement and (e) participat constructively in multilateral intellectual property negotiations.

India was asked to substantially amend its trad laws latest by November 1, 1989 in the case of Speci

301 and by 12-18 months under Super 301, failing which the US would consider retaliatory action in the form of tariffs going up to 100% on products imported from India. The only apparent silver lining is that the provision of retaliation is discretionary and not mandatory

India's case

The US action in equating India with the industrialised Japan looked unwarranted because of the wide divergency in the position of these two countries vis-a-vis US trade deficit. India's exports to US account for less than 0.6% of its total imports and India's trade surplus of 670 million works out to only 0.5% of the total US trade deficit of $ 120 billion. This is in sharp contrast to Japan which enjoys a trade surplus of $ 55.2 billion, representing 50% of the US trade deficit.

The assessment by US Government that India's tariff structure has come in the way of promoting Indo-US Trade and particularly US exports to India is not supported by empirical evidence. India has been following a policy of gradual economic liberalisation and deregulation with a view to opening up the economy to imports and to make domestic industries competitive in global markets. As a consequance, Indo-US bilateral trade has gone up by 15% and US exports to India has increased by about 65%.

As regards import of technology and foreign investment, the policies have been liberalised and procedures streamlined/simplified to enable foreign investors to operate in a freer environment. As a result, the inflow of US technology as well as investment has been on the increase. The largest number of foreign collaborations were approved with US companies. Out of 6769 collaborations approved with all countries between 1981-1989, USA accounted for 1377 collaborations. The total foreign investment approved during this period amounted to Rs. ,11457 million, of which Rs. 2882 million was contributed by US companies. Thus, USA has emerged as India's largest industrial partner with its Share in India's import of technology and foreign investment varying from 20-25 %

Thus US criticism is particularly directed against the 40% foreign equity limit and the FERA regulation. The rationale of restricting foreign equity normally to 40 per cent limit has to be seen in the right perspective. It is based on the principle of giving equal stake to foreign and main Indian partners in a company. Where foreign equity is allowed, the company should be widely held with 20% equity open to public participation. Further, the 40% foreign equity limit is not rigid and relaxed in favour of sophisticated technology and exports. In 100% export oriented units foreign equity could go up to 100%. Thus, India's foreign investment policy is not restrictive and has built-in incentives to boost technological upgradation and exports On the other hand, the US firms are keen to see the foreign equity limit relaxed even in the case of consumer goods sector They feel highly attracted by large and growing internal market represented by about 150-200 million potential consumers. At the present stage of India's economic development and difficult balance of payments situation, the US policy prescription has serious pitfalls in terms of net foreign exchange outflow Import substitution cannot be treated on par with export promotion, since the former would lead to tariff jumping by foreign companies. This would run counter to national interests.

On indigenisation restriction, the US companies feel that what could be imported at lesser cost than procuring locally should be allowed. The principle of comparative cost avantage is a good theoritical concept which, in actual practice, is ignored by many developed countries. For instance, the European community has restrictions on entry of foreign companies unless the domestic content is over 60%. India cannot afford to treat foreign exchange cost and local cost on par from the BOP angle and has also to give due weightage to the employment content in local production

The US impression that our imports are subject to compulsory licensing is also untenable. Nearly two thirds of our non-oil imports are under OGL and do not require clearance by Chief Controller of Imports and Exports. The items can be imported on payment of the requisite tariff.

Regarding foreign participation in insurance business, the same was nationalised in the fifties and is not open to Indian private sector. The fact that foreign companies enjoy substantial business in maritime insurance appears to have been ignored by US authorities

India & Special 301

On Special 301, the most controversial issue protection of intellectual property rights. On top being unhappy about inadequacy of protection und our intellectual property legislation, the US Gover ment is alarmed by the report of Intellectual Proper Alliance that the US loss on account of piracy Indian companies was around $ 123 million whi works out to about 8% of its total export worldwic Inspite of this, the number of applications for pater filed in India by US companies is the highest a accounts for almost 40% of total applications patentable products. Our legislation is under atta in respect of three products viz. food, pharmaceutic and agro-chemicals, since Indian Patent Act of 19 gives protection only to processes rather th products and the duration of patent protection restricted to 7 instead of 14 years. While USA wa

amendment of Indian Patent Law to allow product patent instead of process patent, India and other developed countries are particularly concerned that in products of mass consumption like drugs and pharmaceuticals neither monopoly conditions nor high prices should be allowed. Foreign pharmaceutical companies operating in India within the parameters of Indian legislation are making huge profits and as such do not appear to be handicapped in carrying on business. On the other hand, India cannot afford to restrict R&D activity and possible future innovations.

Uruguay Round

The General Agreement on Tariffs & Trade (GATT) is a multi-lateral treaty (1948) which not only prescribes rules for international trade but is also a forum for discussions and negotiations on international trade issues. Negotiations are initiated from time to time for improving or expanding the framework of GATT rules and disciplines and to liberalise international trade by dismantling tariff and non-tariff barriers Seven rounds of multilateral trade negotiations have taken place and the Eighth round, known at the Uruguary Round, was launched in September 1986 and is scheduled to be concluded in December 1990. Negotiations cover not only the traditional GATT subjects, such as tariff and non-tariff measures and the improvement of GATT rules and disciplines on subsidies, safeguards, etc. but also extend to new areas not dealt with earlier/under GATT, such as Trade-Related Aspects of Intellectual Property Rights (TRIPs), Trade-Related Investment Measures (TRIMs) and Trade in Services. India has been taking the lead in trying to ensure that the interests of the developing countries and their special situation are taken into account and safeguarded under the multilateral framework of rules and disciplines and that the negotiations remain focussed on preservation and strengthening of the multi-lateral trading system.

Emerging position

Both Japan and Brazil had entered into negotiations with US which was keen to get the identified trade barriers removed to promote US exports. Earlier this year, Japan reached an agreement with US on the three Super 301 issues and was dropped from the list of "priority countries". After prolonged negotiations Brazil also fell in line with Japan and in early May 1990 Brazilian Government elriminated quantative import restrictions and abolished the list of import prohibitions that were the subject of the Super 301 investigation. Thus, both Japan and Brazil came out of the purview of the US trade law.

From the beginning, India has refused to negotiate under pressure and still figures in the hit list. US was displeased by India championing the cause of the developing countries in the current Uruguay Round of multilateral trade negotiations. India has been seeking solution of general issues within the multilateral framework and not through bilateralism and without compromising on the sovereign rights to follow independent economic policies.

On special 301, India has slightly modified her stand by agreeing to discuss TRIPs under the auspicies of GATT. Under the US trade law the Super 301 provision is operative upto 1990 while Special 301 provision will remain thereafter. However, in case of both Super and Special 301 the retaliation clause provides for high tariff barrier products imported from priority countries to the US market.

The US-India Joint Business Council meeting in April 1990 was used as a forum by the US trade representative, Ms Hills to declare that if India did not meet American demands under Super 301 and Special 301, American markets would be closed to Indian goods. The Union Finance Secretary, Dr. Bimal Jalan put across India's case clearly and pointed out that Indian laws and regulations had to conform to the desires of the Indian people represented by their Parliament and to suit Indian conditions.

The US stand on 301 negotiations is that these are supportive and complementary to the Uruguay Round efforts. But basically the US action is contrary to the letter and spirit of the GATT principle that, once the Round is launched, no country would disturb the status quo and do anything to improve its bargaining power in multilateral negotiations. Further, US has no moral right to say that India is indulging in restrictive trade practices when the US market itself is protected by regulatory measures which now cover 23 per cent of US imports as against 12 per cent in 1980. India, therefore, is justified in resisting US pressure to reach a bilateral settlement on US terms. India's commitment is to the multilateral process and the country shall continue to strive for the success of the multilateral trade negotiations aimed at the growth of all countries and development of developing countries. The Union Commerce Minister, Mr. Arun Nehru stated in Parliament that the Government was opposed to negotiations establishing linkages between multilaterally agreed concessions in trade, goods and changes in policy lying within the domain of autonomous national economic policies. Going by recent indications US may not resort to retaliation and India automatically would go out of the list as Super 301 provision will be expiring this year. However, the shadow of Special 301 will continue to haunt the Indian policy makers till some guidelines are evolved under the Uruguay negotiations.

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Untapped potential of Indian Agriculture

Dr. D.P. Attrey

Unfortunately our definition of agriculture has so far been restricted to grains production, particularly wheat and rice. Considering the nature of land holdings in the country and the socio-economic structure of our society, it is imperative to resort to mixed farming giving equal emphasis to crop agriculture and animal husbandry, says the author. He feels that this untapped potential will not only help eradicate poverty but will also improve national health.

POVERTY due to unemployment/under employment, population explosion and illiteracy are the main problems of India. Infact, illiteracy and population boom are the off-shoots of poverty It appears to be the fate of the nation that the poorer a family, the larger will be the number of persons in it and vice versa However, irrespective of the government sponsored programmes for family planning and literacy, the well to do persons of our society will limit their family and bring up their children in a proper maner Hence the root cause of most of our ill today is poverty Infact the govt sponsored programme of family planning and removal of illiteracy could not achieve desired results because of the prevailing poverty, especially the rural poverty in our country The question, how to remove poverty, still remains unanswered. Eradication of poverty and ideal development of the villages can be achieved by judicious utilization of land in the country.

Poverty Link

Rural poverty is the main form of poverty in the country, since almost 76% people live in rural areas and only about 24% live in urban areas. As per 7th plan estimates almost 41% of the rural population and about 28% of the urban population live below the poverty line The difference appears to be mainly due to concentration of industries in the urban areas. The development of industries and services in the rural sector is still in its nascent stage In fact, in my opinion the incidence of rural poverty is likely to be much higher than projected because most of the land-less villagers and farmers holding one Hectare (Ha) or less land are expected to be below the poverty line

As per 1981 census, (Table I), almost 56% land holding has been shown to be below one Ha in size and total land under these holdings is only 12 5% of the total cultivated land. Most of the farmers holding 1 Ha or less land are below the poverty line because even with an annual production of about 3000 Kgs of food grains per hectare, having govt support price of Rs. 230/-per quintal, they are not likely to cross the poverty line, which has been fixed at Rs. 6108/- per year per family of five members in rural area (as per the price-index of 1983-84).

From personal surveys and analysis it appears that 40-45% of our farmers own between ½ to 1 Ha of land and about 10-15% own less than ½ Ha of land. The land less constitute about 18-20% of the village population. Those owning less than ½ Ha of land also behave usually as landless labourers. All the marginal farmers and the land-less labourers are likely to be below the poverty line whose lot needs to be changed to change the shape of rural India

A perusal of the "National Agricultural Policy" and Seventh five year plan estimates, makes it evident that our definition of Agriculture has been restricted only to the grains production. In fact this has been so right from the beginning of the Third five year plan. The importance of giving equal emphasis on mixed farming especially the "Animal Husbandry" appears to have been completely ignored. Considering the nature of land holdings in the country and the overall socio-economic structure of our society, it is imperative to resort to mixed farming, giving equal emphasis on the Crop Agriculture as well as Animal Husbandry. But the main thrust of our Agricultural policy, so far, has been to increase grain production that too rice and wheat only. All other produce of Agriculture like animal production, oil seeds production and even the pulses production (which is considered as grain production) have suffered great set back Due to their complete dependence on grain production, the marginal farmers can neve

cross the poverty line. With an increase in land yield, the poverty line also generally goes up due to inflation, making the "Crossing of poverty line", a mirage for the marginal farmers and their dependence on the uneconomical land holdings cannot cease or decrease Either these farmers will have to increase the yield of grains to that extent that they jump the inflation rate and go much above the existing poverty line or they will have to shift to more profitable ventures through land Animal production especially milk production,is one such venture

Dairy as an industry

Till the agricultural activities get the shape of a dynamic industry, the marginal farmers cannot hope to rise above poverty line Taking up milk production as an industry the marginal farmers can cross the poverty line and jump the inflation rate too For example, a marginal farmer can produce easily upto 5000 litres of milk per hectare of land and can get approximately three times the income in comparison with grain production on the same land.

The plan targets to achieve almost 240 million tonnes of grain production by 2000 AD, although ambitious, are not too difficult, with the present pace of development. But the Science Advisory Council has cautioned that if the food production is not raised to 300 million tonnes by the end of this century, there could be a food-crisis. Now this discussion raises a few pertinent questions like what is the basis of our continuously increasing grain production? Is it due to economic reasons or health reasons ?

If it is for economic reasons i e to improve the economic condition of our masses, it has failed to achieve this aim If it is due to health reasons i e to provide balanced diet to our masses, in order to improve their health, then also the purpose has been defeated. Then why are we continuing to produce such a huge quantity of grains, especially, when we know that with grain production our masses can only get sustenance diet but cannot be lifted above the poverty line.

ICMR has suggested the following scale for providing a balanced diet to an average adult Indian:

S.No	Commodity/Food Stuff	Grams/Head/Day
(a)	Grains	
	(i) Cereals + Millets	- 400
	(ii) Pulses	- 85
(b)	Fats	- 28
(c)	Sugar	- 57
(d)	Vegetables and Fruits	- 258
(e)	Milk	- 170

Thus @ 485 gm/head/day we need only 142 million tonnes of grains for 800 million people now, whereas we are already producing about 170 million tonnes of food grains today At this rate we shall need about 177 million tonnes of food grains in the year 2000 AD for about 1000 million population.

Here we may take another nutritional idea into consideration Earlier it was thought that the Common Indian diet is deficient in proteins But now it is thought that it is not proteins, but 'calories' that are deficient, leading to the problem of Protein Calorie Malnutrition (PCM) at a very high scale. Our excessive grain production appears to be the result of this fear of providing sufficient calories to our masses to avoid PCM

Even if we cater to providing 2800 to 3000 calories in our common diet, we need not produce more than 550 gm of grains/head/day especially if we plan to provide a balanced diet to our common people. Otherwise like our animals (which has been discussed later) our human population may also degenerate in health to great extent with excessive calories consumption and for want of sufficient proteins.

In view of the above discussion, it is time now that our grain production is based on our actual requirements and our scarce land utilized accordingly, for providing not only nutritionally balanced diet to our masses, but for taking care of their poverty as well as psychological well being. It has been amply proved that in the present socio-economic conitions of our society, milk is the direct indicator of one's prosperity, especially upto the level of so called "Middle Class Families" The higher the milk consumption in these families, the greater is the level of prosperity

As per personal surveys and analysis, availability of atleast 50 grams of milk per head per day in the house provides not only sufficient nutrition to a family, but also a unique psychological, satisfaction and prosperity int he household. As such, "New Diet Composition Chart" is proposed for an adult Indian in order to provide a balanced diet (initially vegetarian) to our masses, which may be adopted as the basis for our agricultural production and judicious utilization of our limited land At a later stage, if we can afford, we may think of providing non vegetarian food to all those who want, by diverting more resources to our animal production.

The scale of 500 ml of milk per head/day in the diet of our common masses may be disputed by certain scientists But it can be proved to be the requirement from all angles viz economic, nutritional and psychological Without going into this discussion further one can easily calculate our total requirements of commodities/food stuffs for the year 2000 AD from our proposed Diet Composition Chart, presented in Table II below.

As projected in Table II above, the total grain production required for 1000 million people in the year 2000 AD will be around 200 million tonnes.

of economic questions along with a new item seeking/available for work' to assess the extent of unemployment in the country. Information for a sample population was also collected for items such as migration, age at marriage and fertility.

Processing of data

The primary data collected through the census is subjected to preliminary data processing operations like editing, coding and data entry to speed up the data input. In order to make the data more meaningful and useful for data users, it is cross classified by various socio-economic and demographic characteristics. However, in view of the large size of the indian population, only a sample of individual data is tabulated in order to produce cross tabulations within a reasonable time. In the 1981 Census, the main tables of individual data were produced on the basis of 20 per cent area sample on the the electronic Computer except primary Census Abstract based on 100 per cent data and produced manually. Some of the important tables prepared from Individual slip data of 1981 Census are:

(i) *General population tables*
This is the basic population table of Census which gives data on population by sex, area, density of population, number of villages and towns, number of houses and households at tehsil level for rural and town level for urban areas.

(ii) *Primary Census Abstract*
This abstract provides information on residential houses, households, total population, Scheduled Castes/Tribes population, literates, main workers by broad categories of main activity, marginal workers, non-workers and those seeking/available for work by sex. This table indicates the basic Socio-Economic characteristics' of the population.

(iii) *General Economic Tables*
First priority Economic tables cover population by economic activity, industrial category of main workers, marginal workers and their cross classification by age, literacy, educational level, sex and non-workers and marginal workers by type of activity, seeking/available for work and their cross classification by age, literacy, educational level and sex

(iv) *Social and Cultural tables*
Tables of first priority in this series cover age, sex and marital status composition of the population, Single year age returns, educational level and school attendance

Migration Tables
First priority tables cover distribution of population by place of birth, migrants by place of last residence, by duration of residence and reasons for migration and economic activity of migrants reporting Employment' as reason and their cross classification by age and literacy

(vi) *Fertility tables*
First priority tables cover the age at marriage pattern, current fertility and cummulated fertility for ever married and currently married women by present age and duration of marriage at State and district level. Further cross classification by socio-economic factors, religion, scheduled caste/tribe, educational level and occupation is covered at State level

Special Tables on Scheduled Castes and Scheduled Tribes

These tables for scheduled castes/tribes respectively cover main workers and marginal workers by industrial categories, type of activity of marginal workers and non-workers, seeking/available for work among marginal workers and non-workers, age, sex, marital status composition of scheduled castes and tribes separately For scheduled tribes, composition by religion, mother-tongue and bilingualism is also covered.

District Census Hand Books

These are published for each district in the country and contain census tables for the district, the village and town primary census abstract and the village and town Directories. The latter comprise compilations of statistics external to the Census relating to villages and towns, which in conjunction with census data are very useful to data users.

Besides the above tabulations, a number of reports and papers are prepared as part of the Census programme:

(a) Town Directory, Survey reports on towns and villages
(b) Ethnographic notes and special studies on scheduled castes/tribes.
(c) Census Atlas.
(d) Special area Surveys.
(e) Language Survey reports.
(f) Post Enumeration check report.
(g) Age tables.
(h) Life Tables.
(i) Reports on Estimates of inter-censal birtl and death rates using life tables and age data
(j) Development of vital statistics in India.

There are several other tables produced from th Individual slip which cannot be fully described in short write up. The objective here is to highlight th importance of Census taking in a large country lil India, the procedures involved, the schedul canvassed and the numerous cross-classificatio generated through Electronic Data processing meet the growing demands of data users and othe involved in Social and Economic planning.

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Census India - World's Greatest Administrative Exercise

Job Zachariah

India has the distinction of conducting uninterrupted census from 1881. The 1991 census is the 12th decennial census in the series. The first phase of the 1991 census - listing and numbering houses – has already started all over the country.

CENSUS TAKING CAN BE traced back to 4000 B C when Babylonians set up a system for collection of revenues. Records show that Egyptians collected labour statistics in 3000 B.C for construction of Pyramids. Romans undertook regular census for registering citizenship Greeks and Chinese also conducted similar exercises

In India too, census was a well established practice. The edicts of Ashoka in the 3rd century B.C refer to census as a permanent institution. His census included not only the total number of people in each village, but number of cultivators, merchants, artisans, labourers and slaves as well as an account of biped and quadruped animals. The Arthasastra of Kautilya prescribed enumeration of population as a means for efficient collection of taxes

The word Kaneshumari (Census) is derived from the Persian word 'khana' which means house and 'sumeri' which means counting. Besides enumerating population, census provides valuable information on various demographic details. It is a major input in planning, policy making and development process. It also forms the empirical base for a large number of research organisations.

Unbroken census

The history of regular census in India dates back to 1872, when the British conducted it in some parts of the country. However, these were non-synchronous in nature as the collection of data was not uniform and was spread over many years. Regular census in India started in 1881. India has the glorious history of conducting decennial census uninterrupted for the last 110 years. Other countries have not taken regular census due to world wars, natural calamities and epidemics.

When regular census taking was introduced in India there were quite a lot of rumours about the massive operation. Some described it as an exercise to enlist people to offer them to a monster in Britain who would give gold bullion in return. Others feared that census was taken to identify able bodied men to draft them into the army. People used to go in hiding to avoid the census enumerators. The reservations of the people however disappeared when they started realising about the importance of the exercise.

Conducting census in a country like India within a span of 20 days is perhaps the greatest administrative exercise in the world. Visiting every household, conducting headcounts and collecting demographic and socio-economic data is a mind boggling exercise. The immensity of the problem is compounded by illiteracy, poverty and ignorance about the necessity of the census.

1991 Operations

The first phase of the 1991 census operations for listing and numbering houses has already started in the country. During the operation, every house and structure that shelters or likely to shelter people including tents, boat houses, tree houses, carts, caves and huts will be identified and numbered. Even places like railway stations, bus stands and open grounds where houseless persons may live will also be marked. After identifying these dwelling places or houses, a number beginning with the letter 'C' will be painted on them. In forest areas the number will begin with 'CF'

During the first phase, enumerators will visit every nook and corner of the country and fill up two lists viz. house list and enterprise list. In the house list, besides enumerating sex-wise break up of persons residing in a house and their religion, information regarding material used for construction of house, number of living rooms, drinking water supply, electricity, toilet facility and fuel for cooking will be collected. The enterprise list is prepared as part of the economic census for the Central Statistical Organisation (CSO). This seeks data on agricultural and non-agricultural enterprise, ownership, number of persons employed, whether perennially or seasonally operated and power and fuel used. In all,

(Contd. on page 29)

we may be able to get tax revenue either in cash or kind equivalent to almost 1 million tonnes of grains by 2000 AD which may be sufficient for storage as our buffer stock reserve. For example, a big farmer getting 300 quintals of grains per year from his land, equivalent to about Rs. 60000/-, may have to pay almost Rs. 6000/- as tax, equivalent to about 30 quintals of grains per year. This is almost 10% of his total produce Or else we may bring in suitable legislation to levy a uniform tax of about 10% of the average produce of a particular land. All farmers owning 2 Ha or more land should be brought, under the purview of this revenue act. This legislation itself may bring in a great improvement in our total production of the land, because it will force farmers to grow more in their land.

Based on the above discussion, certain recommendations have been made as under for fuller realisation of vast untapped potential of Indian Agriculture which will not only eradicate poverty but will also imporve the national health.

Recommendations

Model Dairy Centres with in a range of maximum 3 kms from each village should be started. These should act as nerve centres of the village having a banking counter, a teaching centre and a first aid set up as its integral part. They should :—

(a) provide know how, technology and useful practical guidance in dairy husbandry and other allied activities like grass cultivation etc.
(b) provide animals as well as facilities for improving/breeding animals.
(c) provide/arrange finances for the purchase of animals.
(d) provide technical help in selection of indigenous animals.
(e) improve existing indigenous stock with proper feeding and artificial insemination/ embryo transfer technology.
(f) provide milk collection and processing facilities.
(g) provide maximum people at least some employment in the village itself by organising milk production as trade or industry, by engaging them in production, collection, processing and transportation of milk
(h) organise services in the village by organising manual labour of technical trades, like, carpenter, barber, washerman, electrician, sweeper, plumber etc.
(i) organise rural marketing set up, in the village.
(j) organise primary level education through villagers themselves.
(k) provide first aid to all the villagers
(l) organise social forestry in the village.

A lucrative procurement price should be fixed for milk as the government support price.

An efficient Animal Husbandry set up for provision of quality animals, fodder and veterinary care should be provided upto village level.

Sufficient land must be earmarked for cultivation of animal fodder

Table II may be adopted as a basis for agricultural production in the country and should be firmly implemented through planning, incentives or/and legislation.

Grain production should be restricted to 200 million tonnes by the year 2000 A.D. Further increase in grain production should be resorted to strictly as per our requirements for increased population by enhancing per hectare yield of land. Our land has potential to sustain upto 1600 million population which is expected by 2060 AD (when India is expected to achieve zero growth rate).

After achieving our targeted grain production remaining land should be diverted to other agricultural produce as per the priorities given below:—

(a) Oil Seeds Production
(b) Milk production i.e. grass cultivation
(c) Sugar production
(d) Vegetables and Fruits production
(e) Other agricultural produce □

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Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana has convened an essay competition open to ladies only.

The subject of the essay is—Girl in Indian Society.

There will be three prizes— 1st prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so.

The last date for receipt of the entries in will be 25.8.90.

Census story

S.S. Kashyap

CENSUS IN TODAY'S CONTEXT is not merely counting of heads but one of the largest Socio-economic surveys seeking to give information on certain basic and essential characteristics of the people. An accurate estimate of the size of population is an essential requirement for all social and economic planning viz. (i) Housing needs of the people (ii) Food requirements (iii) Educational institutions (iv) Generation of employment opportunities (v) Health Schemes (vi) Schemes for the Welfare of women and Weaker Sections in the population (vii) City and town planning. In a nutshell, census provides bench mark data for all future population (vii) City and town planning. Innutshell, Ethnographic studies of the population and has been acknowledged as the most authentic and comprehensive source of information about our land and people.

Operation

For a country of India's size, census taking is a massive operation and is one of the largest administrative exercises in the world today. The first census of India was taken in 1872 and represented the pooling of results of the Censuses taken around that time in various parts of the country. It was from 1881 that a regular and Synchronous Census was conducted every ten years. The last census of India was taken in 1981 and the forthcoming census of 1991 will be the 13th Census of India as reckoned from 1872 and the fifth after independence.

Counting of heads in each and every household of the country is a gigantic task requiring advance planning and organisation. Draft questionnaires are developed and discussed in a conference involving various government agencies, research institutions, data users and other departments of the State and Central government These questionnaires are then tested in the field and then finalised after another meeting with the data users and Heads of various census departments. The schedules and instructions are translated into various regional languages and then printed as per requirement. It is worthwhile to mention that about 6000 metric tonnes of paper was consumed in printing the Census schedules and instruction books in the last census of 1981.

The Census is carried out through the machinery of the State and Union Territory Governments and through local bodies under the State government. The census enumerators are mostly drawn from School teachers and other Central and state government employees. About a million and a quarter enumerators and supervisors were deployed to carry out the 1981 census. Intensive theoretical and pracitcal training is given to the enumerators before taking up actual enumeration work.

Census schedules

At the 1981 Census, three main schedules viz. the Houselist, the Household schedule and the Individual slip were canvassed.

Houselisting is a primary step in the Census and is meant to locate and identify all places occupied or likely to be occupied or used by people. Houselist schedule is canvassed a year in advance of the actual Census at different points of time. In the 1981 Census, this schedule contained the identification particulars of Census houses, uses to which they were put, indentification particulars of households and their members living in the Census houses and physically handicapped persons in the households.

The household schedule and the Individual slip are canvassed at the Census count. In the 1981 census, household schedule collected information on the size of the household, number of couples living in the household, housing conditions and amenities available to households, household ownership of house/site, land and household cultivation. Particulars regarding religion and scheduled caste/scheduled tribe characteristics of head of household and language mainly spoken in the household were also collected.

The key schedule of the Census is the individual slip, through which information on social, economic and demographic characteristics of the population is collected for every individual. This information is treated as confidential under the Census act of 1948. The various items of information collected in 1981 Census covered the relationship to head of household, age, sex, marital status, religion, mother-tongue, other languages spoken, scheduled caste/ scheduled Tribe, literacy, educational level and school/college attendance. Unlike the previous censuses, information on main workers, marginal workers and non-workers was collected on the basis

* The views expressed are those of the author only and not of the organisation to which he belongs.

which can be achieved without any difficulty. The production of other items, however, will have to be planned properly to achieve the targets. Since our cultivable land is limited (around 180 to 190 million Ha) *we must spare land for each commodity* judiciously, failing which we shall not be able to achieve our aim of providing grains production at about 200 million tonnes only because in the present situation of land holdings there is a very limited scope of intensifying grains' production in the country to the extent of its being treated as an industry. Unless grain production takes the form of an industry it can only serve to sustain our marginal farmers and not for their economic upliftment. On the other hand dairy farming can be treated as an industry because it possesses a great scope for intensification of milk yield.

After the year 2000 AD we shall have to intensify our per hectare yield because there is no further scope to bring more land under cultivation. However, there is not much difficulty on this account also if we continue our development with proper planning

Oil seeds production

Today, along with 170 million tonnes of food grains, we are also producing almost 250 million tonnes of "Straw". This enormous quantity of straw has not been used scientifically by us so far. Our most uneconomical population of about 250 million cattle (the highest in the world with the lowest production) is thriving on this straw. Being an animal nutritionist and food scientist, I can say authentieally that this huge quantity of straw, which is liberally available, is the culprit behind the pitiable condition of our

Table-I

Distribution of land holdings and cultivated land in India

Category and size of operational land holdings	*Number of Operational Holdings*	*Percentage of total Holdings*	*Quantity of Land under operational Holdings*	*Percentage of total land undr operational Holdings*
	(Millions)	%	(Million Ha)	%
1 Hectare and (Marginal)	50 52	56 52	19.80	12 2
1-2 Hectares (Small)	16 00	18 0	22.96	14 1
3-4 Hectares (Semi Medium)	12.51	14 0	34 56	21 2
4-10 Hectares (Medium)	0 09	9 1	43 34	29 7
Above 10 Hectares (Large)	2 51	2 4	37 13	22 8
Total	89 35	100	162 75	100

Table-II

Land production and distribution for 1000 million population in the Year 2000 AD

S. No.	*Commodity/Food Stuff*	*Proposed Daily Requirement of an average adult Indian as per New Diet Chart (Grams)*	*Annual Requirment (Million Tonnes)*	*Expected yield (Kgs per Hectare)*	*Quantity of land expected to produce the commodity/food stuff for the country Irrigated (Million Ha)*	*Non-Irrigated (Million Ha)*
	1 Grains					
	(a) Cereals	500	182 5	2000 *		50 00
	+ Millets		18 3			50 000
	(b) Pulses	50				
2	Fats	35	12 0	500	10 00	15 60
3.	Sugars	45	16.4	2500	6 60	–
4	Vegetables/Fruits	250	91 3	10000	9 20	
5.	Milk	500	182 5	5000	15 00	21 50
	Total Land				90 00 @	07 10

* Expected average yield of Cereals + millets- @ 2100 kgs and pulses - @ 700 kgs per hectare.

@ Expected Irrigated land to be available by 2000 AD is approx 90 million hectares

animals and for their degeneration into non-decrepit and unproductive animals Straw contains cellulose mostly, which can provide only energy but no digestible proteins to the animal Without sufficient proteins, the animals cannot be productive

It is very unfortunate that this single factor, viz judicious use of straw, has been ignored completely, so also our animals, which has affected the country's economy in a big way. Straw can be judiciously used with proper combination with protein rich feeds like oil cakes or leguminous grasses. Continuous use of energy feeds without sufficient intake of proteins, has resulted in degradation of even genetic potential for production in our so called "Kamdhenus"

In good old days, proper emphasis used to be given to mixed farming, where each farmer used to grow sufficient oil seeds to meet his own requirements of edible oils besides enough oil-cakes for his animals. But these days the trend is only to, somehow, enhance the grain production, that too mostly rice and wheat. The oil seeds production has almost stagnated for the last three decades. Even the pulses production has been neglected to a great extent

Edible oil seeds production should be linked to grains/straw production so that the straw can also be used judiciously, besides reducing our huge import bill for edible oils. As seen in Table II, our edible oil seeds requirement for the year 2000 AD almost 40 million tonnes (approximately 13 million tonnes of edible oils to meet the edible oil requirement of our 1000 million people) In addition, we shall get approximately 27 million tonnes of oil-cakes as the by-product. This quantity of oil cakes can meet the protein requirements of our animals alongwith some legume fodder (green) and can also utilize about 4 kg straw per animal per day Supplementation of this ration of each animal with about 300 gms bran (another by-product of grains) will help further Infact there are a number of ways in which different by-products of human feeds can be used judiciously for animal production However, the major items needing proper policy decision at national level and inclusion in national planning, are the judicious use of straw with oil cakes and leguminous fodders for which land has to be spared exclusively for them Oil cakes can be reduced if leguminous fodder is increased

Our cross-breeding and other limited programmes of animal improvement are also a part of our one directional policies. Without proper feeding, all such programmes are bound to fail. Rich producers need high intakes of nutritionally balanced feeds. Hence I feel that instead of improving our animals with high yielding foreign blood, we should initially resort to only upgradations with our indigenous stock by proper selection. We neither need, nor can afford high yielding cows till we arrange to feed them properly. Once we have achieved our initial milk production targets then only we may resort to cross breeding/improvement of our animals with foreign blood for intensification of milk production by diverting grains to the animals

Thus by feeding approximately ½ Kg oilcakes per animal per day along with 15 Kg legume grass and 4 Kg straw, we shall be able to feed about 148 million cattle with 27 million tonnes of oil cakes. For this we shall require about 16.5 million hectares of irrigated land for legume grass cultivation. With this we can also utilize 216 million tonnnes of straw properly for milk production, Hence this needs a serious thought so that it can be included in our naltional planning for providing better nutrition to our animals for improving over all national health and the economy. The moment our farmers realise that their animals can respond to better feeding, they will automatically resort to selection and cull the uneconomical animals At present the farmers are forced to keep such animals mainly for their dung and to some extent their mil[illegible] and draught power To provide our 1000 millio[illegible] human population with milk @ 500 ml/head/day i[illegible] the year 2000 AD we shall have to produc[illegible] approximately 182.5 million tonnes of milk/year, Fo[illegible] this we shall need nearly 100 million animals only, [illegible] only, as against 250 million held at present, with a[illegible] approx. yield of 5000 litres of milk/Ha/year. Maximu[illegible] land needed for this milk production is 36.5 million H[illegible]

Another aspect which needs reviewing is ou[illegible] tendency to keep enhancing our targets of Buffe[illegible] Stocks of foodgrains. In [illegible] our buffer stock[illegible] reached a height of 29.2 million tonnes, blockin[illegible] almost Rs.500 crores of government money. Do we recally need such a high quantity of buffer stocks. Th[illegible] severe droughts also have proved that the off-tak[illegible] from our Fair Price Shops, during 8th Plan period may not increase more than 8-9 million tonnes . Th[illegible] opening stocks can be only 25 to 50% of the total of take i.e. not more than 3-4 million tonnes.

It may be appropriate here to consider anothe[illegible] suggestion about our buffer stocks. As used to happe[illegible] long [illegible] the farmers used to pay "foodgrains" [illegible] part of government levy or taxes. It is a strang[illegible] decision [illegible] have exempted agricultur[illegible] produces fr[illegible] income tax. This has not only led to [illegible] [illegible]evenue to our national exchequer but is al[illegible] [illegible]escriminatory and is leading to innumerable m[illegible] practices in tax evasion. The marginal or sm[illegible] farmers, as it is, are not likely to come in the range [illegible] taxable income. Then what is the idea of exempti[illegible] the bigger landlords or farmers from income ta[illegible] when all other citizens of India have to pay the sam[illegible] However, we may consider taxing these big la[illegible] owners by way of levying the tax in kind i.e. in t[illegible] form of food grains. After levying the tax in kin[illegible] the farmer should be permitted to use his produce [illegible] per his choice However, a minimum governme[illegible] support price for each commodity should always [illegible] there to provide basic support to the famer.

About 50% cultivable land is definitely expected [illegible] yield taxable income, althongh almost 70% land [illegible] yield income above Rs. 18000/-. From this 50% la[illegible]

The Struggle for Survival

Ajay Chaturvedi

IT IS STRANGE, BUT TRUE that when the rest of the country is bursting with over population, the tribals of Andaman and Nicobar Islands are struggling for their survival. According to the 1981 Census, the tribal population of this island territory constitutes about one sixth of its total population of nearly two lakhs. The Bay Islands are the homeland of four Negrito tribes namely the great Andamanese, the Onges, the Jarawa and the Sentinelese and two Mongoloid tribes, the Nicobaries and Shompen. Though all the local negrites belong to the same racial group, they are broadly divided by language and material culture into two main groups, one consisting of the great Anadamanese and the other comprising Onges, Jarawa and Sentinelese tribes.

The Negrite tribes and Shompen of the Mongoloid tribes are facing a serious threat of extinction with the population ranging from 28 to 250. The population of the Andamanese declined drastically due to various diseases during the British rule. Numbering about five thousand in the middle of the 19th Century they are only 28 at present. In order to protect them from outside influence they were settled in Strait Island in 1970 and the island has been exclusively reserved for them. Each Andamanese family has been provided with a built-in house.

The Onges, one of the most primitive tribes of india, are primarily a hunting, food gathering and fishing group. In the beginning of the 19th Century the Onges numbered about five hundred but were reduced to about 300 by 1940 and 112 by 1971. Their present population is about 99. Though the decline in their population has been controlled in recent years, there is no sign of an increase. Formerly the tribals wore no clothes, but now most of them wear clothes and follow urban ideas. Besides their own dialect, most of the Onges understand and speak Hindi.

Encouragement

The Andaman and Nicobar Administration has put in a lot of efforts for the socio-economic development of Andamanese and the Onges tribes. A plantation of coconut and other fruits has been raised for their benefit. They work in the plantation and get wages. Gradually being introduced to agricultural occupation, they are also allowed to pursue their traditional vocation of hunting, food gathering and fishing. Since they are good craftsmen, efforts are being made to develop their craft skills. A multi-purpose cooperative society has been formed. The Onges and the Andmanese are share-holders of the society. The Onges have also been provided huts at Dugong Creek and South Bay.

The Jarawas still remain a much misunderstood people. They are very hostile and inhabit the western part of the South and Middle Andaman–an area of 640 square kms. Only 200 Jarawas are said to be alive now. This area has been declared a reserved area. A contact was first made with Jarawas in 1790 when the first settlements were started. For the first time, in 1872 the Jarawas fought with the settlers. Efforts to establish friendly relations with them have been going on since then. Only a small number of Jarawas have responded to these efforts. Now the contact party makes regular trips to the Jarawa area once in a month and provides them with gifts. It has been decided to establish a camp at Kadamtala, a nearby island to promote contacts with the Jarawas.

With an estimated strength of 80, the Sentinelese is also a hostile tribe and lives in complete isolation in Sentinal island. The contact party also visits them and offers gifts. However, the efforts to befriend them are yet to bear fruit. The Shompens are very shy people who live scattered in several pockets in the jungles of great Nicober. A Shompen complex consisting of a school, a dispensary, and a community hut has been built in their area. They are given free ration. The Shompens numbering about 200, are still in the primitive food gathering stage. The Shompen language has different dialects with distinct features and has no script.

The Nicobarese, a flourishing tribe are primarily horticulturists with large coconut plantations. They also rear large herds of pigs. Spread all over the Nicobar group of Islands they speak a number of dialects which show variations in their cultural and social practices. The impact of Christianity has been the most important single influence on the socio-economic and religious life of the Nicobarese. Their total population is 22,025.

Tribal uplift

A well defined policy is being followed for a long time for the development of the tribals in these

(Contd. on page 29)

Women Workers deserve a better deal

Bimlesh Kumar Mishra

In this article, the author notes that though women as a 'group' constitute an important part of the labour force, even today they form no more than 'a safety valve for labour market' in India. Stagnant agriculture, decline in household industries and lack of generation of additional employment opportunities are, according to him, major factors of low work participation rate of women.

ONE OF THE IMPORTANT AIMS of an effective manpower policy is the best possible utilisation of a nation's human resources. Women as a "group" constitute an important part of the labour force of the Indian economy But the constitutional gnarantce of equlity of opportunity of work for men and women have not been realised at all. Even today, despite a number of programmes carried out by the different organisations, women form no more than "a safely valve for labour market" in India Our patriarchal system, together with biased and faulty education system, has been made to operate in such a way as to make a women's job both economically and technically marginal.

In the above background the present article deals with changes in the share of female workers in the total working force in India during the period 1901-1981. In conventional economic theory it is assumed that the long term trend in working force and in population are identical. Indian experience, however, shows that the two are at variance The number of female workers increased faster than the male population in the first decade, showed a significant lag between 1911 and 1951 and a tremendous spurt in the decade 1951-61 The participation rate in 1971 census was the lowest for both males and females but for the latter it was substantially low During the decade 1971-81 the share of women workers has registered an improvement. though marginal. Such divergent trends have resulted in variations in worker-population ratio which are partly conceptual. There are, however, indications that some real factors, demographic, economic and cultural may have also contributed to these variations over time.

An important part of the article has been devoted to study the changes in industrial distribution of Indian female work force during 1961-81. Economic reasoning as well as historical experience of the developed economics suggest a consistent pattern of structural shift in labour force that accompany economic development There has been a push towards agricultural sector and corresponding loss in non-agricultural sector. The analysis of industrial distribution of female workers that is attempted here reveals significant structural changes, though it will be too soon to take these changes as indicator of trends in the economy in general and in the employment in particular

The Economic Scenario

Since the advent of planning in India there is increasing interest in the issue whether, the growth of economy has provided new job opportunities commensurate with additions to labour force The employment situation of a country should be discussed in the light of economic growth The annual average compound rate of growth for the agricultural sector has been declining and has remained at 1.5 per cent in 1980-81 Looking at the commodity sector as a whole the picture is equally bad wherein the growth rate has kept on declining and has touched the point as low as 2 2 per cent in 1980-81. More and more women have been pushed to agriculture sector where growth is almost stagnant. In non-commodity sector, which is growing substatinally, the share of women workers has gone down from 17 42 per cent in 1961 to 15.66 per cent in 1981 Though, in recent years between 1980-81 and 1986-87 the growth rate of commodity sector increased to 3.8 per cent but this was basically due to upsurge in the growth rate of mining and the large scale manufacturing industries, while growth of agriculture continued to be 1.5 per cent.

The steady accelaration in the commodity sector is bedly needed, because only by promoting this sector we can provide relief to the poor and generate ample employment for women.

freed and rehabilitated so far has not established the credibilitv of the administration in providing a viable alternative source of livelihood. In fact, the whole issue calls for more vigorous steps on the part of the State Governments so that necessary confidence may be restored both at the official and the bondsman levels. For this an ambitious programme has to be chalked out on the following pattern:

(i) Rewarding sincere officials who take pains to locate bonded labour and punishing those who show neglıgence in their efforts

(ii) Adequate funds at the disposal of district administration to get the job done.

(iii) The district administration must be asked to take effective action against money-lenders and big landlords who have scanty respect for law so that a more congenial climate ıs created in the rural areas for oppressed bondsman to speak out the truth.

(iv) A time bound programme should be drawn up to abolish bonded labour.

(v) Those who keep bonded labour or perpetuate the system should be politically and socially ostraseised.

(vi) Unions of identified bonded labourers should be formed at panchayat level which should develop a vested interest in locating other bonded Labourers and help mass mobilisation of the area.

Freeing from Bndage

Secondly, it calls for the release of the bonded labour from the clutches of the land owners and money-lenders. The Act of 1976 provides for punishment to those who contravene the provisions of the Act and the responsibility for doing it devolves on the District Magistrates or any other officials authorised by him. It has been noticed that just to avoid the legal proceedings, the erstwhile masters voluntarily release the bonded labourer. But the process of voluntary release is done to escape legal action and allow the system to operate, through back door. This is evident from the study carried out about the State of Rajasthan It reports that "out of 5523 cases of bonded labour identified till Feb. 1977, 3350 were released voluntarily. In the remaining cases only 693 were challaned, 77 were convicted, 40 cases were acquitted and 576 cases remained pending." In fact the Masters coerce the bonded labour into making statement before the concerned officials that he was actually free. The process of voluntary release also gets support from the administration as it spares the bonded labourers much of the unnecessary litigation and facilitate their quick rehabilitation It is necessary for the administration to guard aganist the fake release, and also to ensure that the guilty are punished. So it is desirable that the voluntarily released bonded labourers are legally protected and becomes liable for rehabilitation.

Rehabilitation

The most crucial aspect of the whole process is to rehabilitate the freed bonded labour on permanent basis. The Act of 1976 provides the whole responsibility on the District administration. Experiences gained so far in the matter has shown how inadequate and unsatisfactory government effort has been No attempt at any level has been done to rehabilitate them properly So ıt requires not only careful planning but it must also be ensured that the adequate relief is actually provided.

The rehabilitation planning should ensure that all previous liabilities and debts are liquidated and assets restored as per the law They should be provided a viable livelihood and continuing source of income round the year. The government should see that they are provided with production loan as well as consumption lone so that they should not go to their erstwhile masters for the same Besides, it must be ensured that they are not implicated ın false cases and do not face social isolation and harassment. They require full protection till they are fully rehabilitated Above all, they must be made politically, conscious through various ways to enable them to effectively resist attempts to draw them back into bondage.

Any rehabilitation scheme must attempt to provide a viable source of livelihood to the affected persons which assures income round the year. Generally they are given a piece of surplus government land with some cash assistance for cultivation. But the land allotted to these people is generally barren and the cash assistance too meagre to make them cultivable A down to earth credit policy has to be worked out to cater to their needs. It has been established that many poor have been trapped into bondage because they require consumption credıt either for meeting food requirements in lean season or for meeting urgent social needs which no public credit agency is prepared to extend. The credıt institutions including cooperative and banking agencies must take note of it if they sincerely wish to help that section living below poverty line. It is the failure on the part of these institutıons which force them to go to money lenders for their consumption credit. No government have tried to tackle these problems seriously A policy decision at national level is required on this issue and necessary guidelines ıssued about the categories of people to whom and circumstances in which consumption credit can be extended by credit disbursing agencies.

But where there is no surplus government land to distribute or even if the land has been allotted and the same does not assure income all the year round, diversification of occupational structure has to be thought of and alternative employment opportunities have to be provided. In this connection, they may be asked to set up small forest based ındustries, like match making, furniture making, sports goods or

agriculture based occupations like sheep breeding, horticulture, poultry, and piggery, etc But such employment scheme should be carefully drawn up in consultation with the persons to be rehabilitated and must have an integrated approach providing for not merely credit facilities but also marketing avenues If there are no marketing facilities, most of the schemes will become unviable. So it requires prior planning and a great deal of effort on the part of the Government, semi-government and voluntary agencies.

If there is any inadequacy in rehabilitation efforts, the erstwhile masters may find it easy to convince the labourers that they have bargained not for freedom but for a problem ridden life and that their earlier lot was decidedly better. Besides, the big land-lords may manipulate things in such a manner so as to make living difficult for them. Under the circumstances the best solution would be to rehabilitate them in urban employment so that they are completely removed from the catchment area of rural power structure Urban industrial employment would also assure a fixed monthly wage and freedom from fear

But it would be difficult to provide job to a large number of such people in urban areas Therefore, a viable rehabilitation scheme has to be conceived within a rural framework based on agricultural vocation primarily. For this, freed bonded labour has to be organised and they have to be provided with initial inputs to undertake intensive agricultural operations Multi-cropping would itself generate employment all round the year A settlement pattern of this sort alone, would ensure that there is no relapse bondage

After rehabilitation

But the main problem would be to ensure that the bonded labour is not forced to return to his earlier state. The Act of 1976 laid down the entire responsibility of ensuring that this does not happen on the District Magistrate who would be helped in this respect by the Vigilance Committee But these committees are virtually not existent They must be reconstituted and must be asked to perform their duties as assigned by the law

Recommendations

The provision of minimum wages in the area is must This will contain extreme poverty and exploitation The labour will get adequate return for its productivity. Once minimum wages are enforced, loss of access to cheap labour would reduce the temptation on the part of landed people to make them bonded.

Active mass mobilisation of affected labour as well as the poor people of the area is also required Besides they must be organised and recognised on the line of trade union This will generate the requisite political consciousness and inculcate in them leadership qualities and skills required for fighting social and political battles.

An attempt should also be made to impart social education so that necessary awareness may be created to curb extravagant expenditure on traditional occasion. In this endeavour social organisations will be of much help to them.

All transfers of land from Harijans and Adivasis to higher caste people and even to the persons of the same caste should be declared illegal. This may create hardship for those people but it would be beneficial in the long run because it would ensure a permanent livelihood for them. It would also reduce temptation of higher caste people to grab their land. Steps should also be taken to prosecute money-lenders if they violate the law This would reduce the temptation to exploit the needy poor

So the system of the bonded labour is basically a product of an economic structure with unequal access to resources which regards ownership rather than work and "a highly stratified social structure which perpetually condemns a section of people to be virtual slaves to the rest of society." In fact the unequal ownership of means of production and the privilege of birth in a well-to-do family is responsible for the creation of an oppressive rural structure which rules everywhere in the country. What is required under the present set up is to break up this rural structure. For this the land reforms measures and mass mobilisation of the oppressed is required. However, the experience of the past shows that most of the steps in this direction have failed or have been crushed

Thus a close cooperation and sincere efforts of progressive and social reform oriented administrators, voluntary agencies and social workers and action researchers is a necessary pre-condition to launch a social amelioration programme for the Bonded Labourers

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Table IV

Industrial Classification of Female Workers by Education Level (Per cent)

Industry of Origin	1961 Census				1981 Census			
	Illit-erate	Below Matric	Martic & above	Total	Illit-erate	Below Matric	Matric & abo	Total
Cultivator	95.91	4.07	0 02	100 00	87.90	11.49	0 61	100 00
Agricultural Labourer	97.71	2 29	0 00	100 00	91 99	7 78	0 23	100.00
Mining, Forestry, Fishing, Hunting, Plantation, Orchards and Allied Activities	95 86	4.07	0.07	100 00	83.69	14.94	1.37	100 00
Household Industies	88 83	11.03	0.09	100 00	75.67	22 65	1 68	100 00
Other than household Industries	82.64	15.94	1 42	100.00	62 66	20.74	7.60	100.00
Construction	97 31	2 23	0 46	100.00	90 55	7 16	2.20	100 00
Trade and Commerce	91.01	8 06	0.93	100 00	68.91	18 91	12 90	100 00
Transport and Storage, Communication	72 35	10 48	17 17	100.00	44 03	17 36	38 61	100.00
Other Services	84 29	9.97	5 74	100.00	14 95	15.25	43.80	100.00
Total	94.67	4.84	0 49	100 00	85 35	11 28	3 37	100 00

Source: Census of India 1961, Vol I, part II B (i) General Economic Tables and Census of India 1981, Series-1, part II, Special Report and Tables based on 5 per cent sample data

substantially increased from 13 per cent to about 25 per cent. Table IV gives the classification of female workers by their educational level. The figures reveal the obvious desirable effect of literacy throughout.

Here the educated workers are defined as those who have an educational level of matriculation and above. In primary sector and household industry only a small share of female workers are in the educated category During the last twenty years their share has increased only marginally In non-household industries and construction there has been an increase in the female educated workers having an educational level of matriculation and above

A significant development in the changing pattern was the substantial increase in the educated workers engaged in trade and commerce The percentage of female educated workers in trade and commerce has increased from 1 per cent in 1961 to 13 per cent in 1981 Likewise there has been a steep increase in the number of female educated workers in transport, storage and communication and other services. The share of the educated female workers in other services has grown substantially. From the above we may draw the following conclusions about the emerging trends in female educated workers. The educated females have a very low priority to work in primary sector and household industry. Likewise their preference to work in jobs connected with non-household industries and construction is also low. But the educated females mainly prefer jobs in tertiary sector. Within tertiary sector they prefer a job connected with service activities

Conclusions

India has a low rate of growth and growth has declined in commodity sector indicating a serious threat to the well being of poor and illiterate women of the country. Stagnant agriculture, decline in household industries and lack of generation of additional employment opportunities are major factors of low work participation rate of women. The drastic fall in the share of female cultivators and steep increase in the proportion of female agricultural labourers are matters of concern. The fall in the female employment in secondary sector is due to the decline in household industries which have been sustituted by big factories and other large scale industries where women have not been given their due. In the tertiary sector, even after considerable improvement in education, women have not been able to capture the adequate share of employment opportunities in services sector, and their share has gone down from 7.35 per cent in 1961 to 5.36 per cent in 1981.

Ample educational facilities should be provided for educating and making our women aware of their rights and this only will help them to fight the social factors which are largely responsible for their neglect. Secondly, enforcement of legal rights and extension of facilities meant for them is the need of the hour Creation of new and larger employment oppotunities in secondary and tertiary sector will go a long way in bringing them to the mainstream of labour market in our economy and in making them part and parcel of the social production Reservation of employment for women is bound to create more heat than light and also the enormity of the unemployment problem is such that this "pacifier" will not obviously get them anywhere.

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Bonded labour: Myth or reality

Shrivastava Umesh Prasad

Inspite of claims, bonded labour remains a reality in India even today, the author affirms. Analysing the root causes of bondage, the author examines in detail the four stages which call for urgent action if the malady is to be undone. He suggests a few steps which may go a long way in ensuring abolition of bonded labour and prevention of relapse to bondage.

BEGGARY AND OTHER FORMS of forced labour are prohibited under Article 23 of the Indian Constitution However, even after four decades of Independence, this phenomenon still continues to exist in one form or the other, in almost all the regions of the Indian Union Though there is a variation in names, the system of bondage and the element of debt are universal all over the country

In fact, the Bonded Labourers form the lower strata of the class of landless labourers that constitute between 30 and 35 per cent of the total rural population of India Over 90 per cent of the Bonded Labourers belong to the Scheduled Castes and Scheduled Tribes. The rest 10 per cent come from the so-called backward classes group The master belongs to the upper caste or to the upper strata of the backward castes Their place is the lowest in ritual hierarchy of the caste order, which is very much marked in the Indian system of caste society

Thus viewed, the problem is to identify and rehabilitate the bonded labour In a study carried out in Rajasthan by Shri G B Sharma during September 1975-October 1976, it was discovered that in abolishing Bonded Labour, the performance of the States was pretty dismal The position in respect of rehabilitating them is still worse

It was only in 1976 that Parliament enacted the Bonded Labour System (Abolition) Act, 1976 providing for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of the weaker sections of the people This was quite the fulfillment of the relevant intention under the Twenty Point Programme of the then Government as well

But the problem still remains unsolved largely due to the apathetic attitude of the State Governments. No comprehensive programme of action has been drawn up by State Governments to put an end to this sordid practice The problem has almost been forgotten and it is high time that the Government at the Centre realized the reality

Any attempt to chalk out a plan of action requires a genuine desire on the part of the Government to enforce the spirit of 'The Bonded Labour System Abolition Act 1976 It should be borne in mind that both the politicians and bureaucrats who are the kingpin of policy making', must realize the gravity of the situation However, it is gratifying to note that the politicians are committed to the abolition of the system of the bonded labour Any plan for amelioration of bondage requires operation at the following four stages:

1. Identification of bonded labour,
2. Freeing them,
3. Rehabilitation and
4. Ensuring that there is no relapse

Identification

The identification of bonded labour poses a formidable problem Neither the politicians nor the officials are ready to admit that there exists bonded labour in their administrative jurisdiction. The annual reports of the Commissioner for Scheduled Castes and Scheduled Tribes on the subject during the past few years corroborate this impression. During the labour (State) Minister's Conference, back in 1977, it was concluded that there was no bonded labour in any State But painstaking efforts of Government, Semi-Government and autonomous private agencies helped to penetrate this massive wall of what has been called "ignorance matched by evasion".

It must be emphasised that there is also the reluctance on the part of the bonded laour himself to cooperate The reason is obvious. The bondsman lives in constant terror of the 'Master' who operates the system with hired musclemen in collusion with police and civil machinery The administration is quite indifferent to the plight of the bondsman. If they go to the administration for support, they are harassed and also lose their assured livelihood. The alternative means of livelihood are never provided by the administration It might become more pronounced now because the experience of the bonded labourers

The study of sectoral share of industries in real net domestic product reveals that the mining and manufacturing industry has made the most significant improvement between 1960-61 and 1980-81 but during this period while the proportion of female worker to total female workers in the industry has increased only marginally, from 2.01 per cent to 2.06 per cent, the work participation of women has substantially gone down from 2.13 per cent to 0.64 per cent.

The decline in the share of female employees in mining and large scale industries is partly due to their physical unsuitability, modernization in certain sectors and absenteeism, and partly due to other factors such as lack of training, non-payment of maternity benefits and worst of all due to retrenchment. *In a publication of Labour Bureau, it is stated that* "the number of women employed in factories has gone down from 10.37 per cent to 8.73 per cent during a short span 1963 to 1972. This decline could be explained in terms of poor working conditions, poor health facilities and discriminatory wage structure.

Table I presents some relevant and self revealing demographic statistics on Indian Women

The female population has been growing fast after the "great divide" and the rate of growth has marked 2.5 per cent in the recent decade Today, women constitute 48 per cent (331 million) of our total population. In the Indian context, the explosion of population is bad, but still worse is the chronical decline in sex-ratio. The figures of sex-ratio have remained far from ideal unity and their constant decline reveals the attitude, treatment and disparities that our patriarchal set has maintained against women Looking at the progress of female literacy over decades one finds substanital development It has gone up from 0.6 per cent to 24.8 per cent during last eighty years and has increased faster than that of males with the result that the percentage of male literacy which was more than 16 times in 1901 was less than twice in 1981. But the other side of the coin is rather rough. The literacy rate in females is still 25 per cent as against 48 per cent in males, indicating wide disparity in the male-female education. Though the sex ratio of females per thousand males in India was 933 in 1981, there is lot of bias towards males, even at the educational platform The educational institutions for grils have increased from 24067 in 1949-50 to 53356 in 1977-78 whereas the boy's educational institutions have shown an increase from 255236 in 1949-50 to 610289 in 1977-78.

The increasing dependency ratio of females gives an eqally unhappy picture of their state of affairs. It rose from 776 in 1911 to 939 in 1971. This only shows that the working force has not kept pace with dependents over decades. That in recent decade 1971-81, it has come down to 812 is relieving.

Work participation

Table II presents the work participation rate of women and the proportion of working women in agricultural and non-agricultural sectors. The proportion of female workers in total work force has also been given. It is evident from table II that female work participation rate has been around 32 per cent till 1921 but it declined to 23.3 per cent in 1951. A significant improvement has been there in 1961 pushing the rate up to 28 per cent. The work participation rate and male-female ratio of workers was lowest in 1971 and it was significantly low in case of women. The 1971-81 decade shows further improvement of about 2 per cent in the proportion of females in work force.

It is important to note that over time female employment remained largely confined to industries such as agriculture which are relatively stagnant Moreover in the agricultural sector the percentage of female workers has been rising. It rose from 74 per cent in 1901 to 81 per cent in 1981. The proportion outside agriculture recorded a stricking fall from 26 per cent in 1901 to 14 per cent in 1961. The relative decline in non-agriculture work force was mainly accounted for by the fall in manufacturing employment in third and fourth decade of the twentieth century

The male-female worker ratio also reveals a strong sex bias in favour of males. After independence the participation of females has remained around 30 per cent only or sometimes even lower. It was particularly

Table I

Trend in Female Population Growth, Literacy and Dependency Ratio

Census Year	*Total Female Population (million)*	*Decenial Growth Rate (%)*	*Sex Ratio*	*Literacy Rate (%)*	*Dependency Ratio*
1901	117	—	972	0 6	—
1911	124	6.0	964	1 1	776
1921	123	-0 8	955	1 8	800
1931	136	10 0	950	2 9	792
1941	155	14 0	945	7 3	N A
1951	175	13 0	946	7 9	778
1961	213	22 0	941	13 0	887
1971	264	24 0	930	18 7	939
1981	331	25 0	933	24 8	812

Source: Basic Statistics Relating to Indian Economy, Vol I All India, August, 1988
Census of India 1971 and Paper of 1967, 1961

Table II

Female Work Participation Rate (per cent) and Their Proportion in Total Work Force

Year	Female Work Participation	Percentage of female workers in*		Proportion of female workers to all workers
		Agriculture and allied pursuits	Non-agricultural Activities	
1901	31 80	73 66	26 34	33 56
1911	33 70	76 91	23 09	34.49
1921	32 60	78 54	21 46	34.05
1931	29 80	77 71	22 29	31 77
1951	23 30	82 18	17 82	28 89
1961	28 00	85 68	14 32	31.53
1971	12 06	82 61	17 39	17 41
1981	13 99	81 23	18 77	28 40

* Unspecified workers of years up to 1961 have been merged in agricultural and non-agricultural catagories in proportion

Source: Census of India 1961, Vol I, Monograph No 11, Census of India 1961, Paper I of 1967 Basic Statistics Relating to Indian Economy, Vol I All India, August 1988

Table III

Industrial Classification of Female Workers (per cent)

	Industry of Origin	1961	1981
1	Cultivator	55 71	37 49
2	Agricultural Labourer	23 86	44.79
3	Mining, Quarrying, Forestry, Fishing, Hunting, Plantation, Orchards, and Allied activities	2 01	2 06
	Primary Sector (1+2+3)	81 58	84.24
4	Household Industries	7 84	4 44
5	Other than household industries	1 33	3 14
6	Construction	0 41	0 68
	Secondary Sector (4+5+6)	8 58	8 26
7	Trade & Commerce	1 38	1 75
8	Transport & Storage, Communication	0 11	0.29
9	Other Services	7 35	5 36
	Tertiary Sector (7+8+9)	8 84	7 40
	Total	100.00	100.00

Source. Census of India 1961, Vol I Part II (B) (i) General Economic Tables Census of India 1981, Series-I Part II, Special Report & Tables based on 5 per cent sample data

low in 1971 at 17 per cent, but it may be due to change in definition of work

Changing Occupational pattern

Both the censuses in 1961 and 1981 reveal that not only female workers are much less than male workers but also that their occupational pattern is very different and less paying. Table III shows that a much larger proportion of women workers is occupied in agriculture, mainly as agricultural labour Another development was a substanital increase in the agriculture sector in an economy where agricultural growth is stagnant or negative The most unwanted development was the increase in the proportion of female agricultural labour at the cost of their proportion as cultivators. From the figures it is assumed that a large number of female cultivators has been converted into agricultural labourers during this short span of twenty years. This is largely due to incessant fall in per capita landholding. The only positive change in female employment in Primary sector is the growth in employment in livestock, forestry, fishing and mining activities and that too is marginal. In secondary sector, the share of female workers registered a fall mainly due to the decline of household industries. But in non-household industry and construction the share of workers has registered an increase denoting an increase in employment opportunities. In the tertiary sector, the first two sub-sectors have registered increase but the services sector has substantially declined.

Occupational change of work force has much to do with the changing level of education. During the last twenty years the literacy rate of female has

Self-employment to educated unemployed youth scheme : A Study.

Dr. P.Mohan Reddy, L. Gopala Krishnaiah and Dr. C.Sivarami Reddy.

In this stydy the authors have pinpointed certain problems in the proper implementation of the SEEUY. These relate to indifference of banks, procedural rigidities and lack of guidance in choice of vocation. It is proposed that the district industries centre should take a more active role in selecting enterprises and spotting entrepreneurship. The authors have suggested, among other things, creation of Gramodaya Beneficiaries Development Project, Gramodaya Mini-industrial State at mandal level and an apex body for improving marketing facilities.

ONE OF THE MOST CRUCIAL problems of the day is uneployment It is most severe in rural India From time to the programmes and schemes have been implemented to eradicate.unemployment problem by the Central and State Governments. Some schemes have made some headway, but others have failed Hence, there is the need to probe the working of such schemes. One such scheme is Gramodaya- an innovative scheme for providing self-employment to educated unemployed rural youth. An attempt has been made to evaluate the working of Gramodaya scheme in Chittoor District of Andhra Pradesh.

Methodology

Chittoor is one of the 14 industrially backward districts in Andhra Pradesh selected for implementation of Gramodaya Scheme. The Scheme has been in force since 1983-84 in Chittoor District. It is implemented under the supervision of the District Industries Centre (DIC). The present empirical study is confined to Chittoor Mandal of Chittoor District wherein a total of 272 units were working under the scheme by the close of financial year 1985-86. These units were categorised into (55 units), business (98 units) A sample of 30 units consisting of 10 units in each sector was drawn by applying stratified random sampling technique to represent the population in all its characteristics. The preliminary data relating to the working of the scheme in Chittoor Mandal were collected in two distinct processes The primary data were collected from the beneficiaries by pesonal interviews in the field through structured questionnaire to identify the drawbacks and highlights of the scheme The source for all the tables presented in this paper is from field investigation. As a prelude to study of the working performance of Gramodaya scheme, it is relevant to explain in brief the preliminary details of Gramodaya

Procedural details

The Gramodaya scheme envisages a composite loan of Rs 25,000 to beneficiaries with Central Government subsidy of 25 per cent of the amount sanctioned. The subsidy amount i e , one-fourth of the amount sanctioned in favour of the beneficiary will be credited into bank as fixed deposit in his name The amount of interest accruing on this deposit will be credited to his loan account. The bank will advance the entire amount sanctioned as loan to the beneficiary : the bank later on recovers three-forths of the sanctioned amount, and the deposit amount will be closed. All the assets created by the bank loan will be mortgaged to the bank The loan will bear an interest of 10 per cent for backward areas and 12 per cent for other areas Recently, regrouping has been made with Rs 35,000 for industrial units, Rs,25,000 for servicing units, and Rs 15,000 for business units under Gramodaya The applicants are required to submit applications in prescribed form to the District Industies Centre (DIC) in the concerned District. The selection of candidates at the rate of one per village is made by the District Gramodaya Committee under the chairmanship of the District Collector The criteria adopted in selecting the beneficiaries under the Gramodaya scheme are that an applicant from village should be a native of that particular village only, who has set up the enterprise in that particular village having passed 10th Class and above and be unemployed, falling in the age group of 18 to 35 years There

should be no person employed in the family and it should not own more than one house or 2.5 acres of dry land. The Department of Industries had prepared about 100 schemes of general adopatability costing less than Rs 25,000 each which could be set up under the scheme. Additionally, each DIC had prepared more schemes which are of special interest for that particular District (like slate making in Kurnool district and mat weaving in Chittoor district) The following are some of the units which can be started under the scheme in each sector i e., in industry sector for example agrabathi manufacturing, soap manufacturing, toy making etc. In service sector auto-rickshaw, radio and television repairing, tailoring, etc , and in business sector : bangle shop, pan shop, tea stall, etc

The empirical data collected from the sample beneficiaries of Gramodaya are tabulated and analysed

Educational Background of the Beneficiaries: Table 1 depicits the educational background of the beneficiaries at the time of their selection under Gramodaya Scheme. The data set out in the Table reflect that exactly 50 per cent of total beneficiares selected had SSC qualification which is considered to be the minimum as per the guidelines of the scheme Graduates accounted for 27 per cent, whilst the rest belong to intermediate level of education It is interesting to note that educated youth with technical qualification are not attracted towards the scheme, as was expected while the scheme was contemplated and introduced Some of the beneficiaries however had additional technical qualification and it is more so in case of units started under servicing sector

Table 1

Educational background of the beneficiaries

Name of the Sector	*Educational Qualifications* upto matricu-lation	Inter-mediate	Gradua-tion	Tech-nical	Dip-loma	Total
Industrial Units	2	5	3		-	10
Servicing Units	7	1	2	(2)*	(1)*	10
Business Units	6	2	2		–	10
Total	15	8	7			30
Percentage	50 0	26 7	23 3			100

* Indicate additional qualification of the candidate

Family Size-wise Classification: The details pertaining to the size of the family of the beneficiaries are presented in Table 2 The data indicate that 43 3 per cent of beneficiaries were from the family size of 4 to 5 members. 33 4 per cent from 6 members and above and the remaining 23 3 per cent from 1 to 3 members It is thus found that rural educated youth who hailed from medium sized families evinced considerable interest in starting the units in the three sectors under the Gramodaya Scheme Further it is also clear that educated youth from small sized families are less attracted towards this scheme

Table 2

Family size-wise classification of the beneficiaries

Name of the Sector	*Family size* 1 to 3 members	4 to 5 members	6 mem-bers and above	Total
Industrial Units	2	4	4	10
Servicing Units	4	4	2	10
Business Units	1	5	4	10
Total	7	13	10	*30*
Percentage	23 3	43 3	33 4	*100*

Age-wise Classification: Age-wise classification of the beneficiaries is shown in Table 3 The data borne out of the table portray that 43 3 per cent of the beneficiaries were from the age group of the 24-29 years, 33 7 per cent from 30-35 years and the rest of the 20 2 per cent from 19-20 years It points out that youth in the age group of 18-20 years, were not adequately represented The study opined that there exists positive co relation between the age and inclination towards the scheme. In other words more the age of the beneficiary higher eagerness to settle in some type of avocation

Table 3

Age-wise classification of beneficiaries

Name of the Sector	18-23	24-29	30-35	Total
Industrial Units	2	5	3	10
Servicing Units	1	6	3	10
Business Units	3	2	5	10
Total	6	13	11	30
Percentage	20 0	43 3	36 7	100

Caste-wise classification: A perusal of Table 4 shows that representation of forward castes in the scheme stood at 56 7 per cent, back ward castes at 33 3 per cent and Scheduled castes at 10.0 per cent The representation from Schedule Tribes was nil due to insignificant tribal population in the study area Despite this, it is observed that yough belonging to weaker sections of society were not adequately represented. The reasons for such state of affairs are official lacunae on one hand and absence of enthusiasm from these sections of society on the other.

Table 4

Caste-wise classification of beneficiaries

Name of the Sector	SCs	STs	BCs	FCs	Total
Industrial Units	1	-	2	7	10
Servicing Units	1	-	6	3	10
Business Units	1	-	2	7	10
Total	3	-	10	17	30
Percentage	*10 0*	-	33.3	56.7	100

The beneficiaries were asked about the period of time taken in grounding the scheme The information related to this aspect is furnished in Table. 5 The data reveals that 56 7 per cent of beneficiaries grounded their units two to three months from the date of sanction In between one and two months the number of units grounded have accounted to 13 3 per cent and equal per cent of units are also grounded below one month duration. In rest of the units inordinate delay was caused in grounding the schemes. The beneficiaries felt that the delay was mainly due to red-tapism by the implementing agencies of the scheme. For example, slow processing of applications by DIC officials and leisurely sanctioning of loans by banks. Added to this in certain other units amount received was inadequate to ground the unit. Considerable delay in acquiring the machinery and arranging for raw materials have also led to more time for grounding units particularly in case of the units started under industry sector

Table 5

Time taken in grounding the schemes

Name of the Sector	Below One month	1 - 2 months	2 - 3 months	Above 3 months	Total
Industrial Units	1	1	5	3	10
Servicing Units		1	8	1	10
Business Units	3	2	4	1	10
Total	4	4	17	5	30
Percentage	13 3	13 3	56 7	16 7	100

Changes in Income levels: The past and present income levels of all beneficiaries are given in Table 6. It is clear from the table that a sizable number of beneficiaries representing 56 7 have improved their finanical status as against their past position. However, in six of the 30 units surveyed it was found that the beneficiairies' income level instead of improving had deteriorated owing to their negligence and carelessness.

Table 6

Income of the beneficiaries before and after taking up the sceme

Name of the Sector	*Income Increased*	*Income not increased*	*Closed units*	*Total*
Industrial Units	8	1	1	10
Servicing Units	5	3	2	10
Business Units	7	2	1	10
Total	20	6	4	30
Percentage	66 7	20 0	13 3	100

Additional Employment generated A look at Table 7 shows the additional employment created by the units undertaken by the beneficiaries In majority of the units (16) additional employment was created for a total number of 38 members in addition to the beneficiaries. However, in 14 of the units the additional employment created is completely absent and the beneficiaries could alone run the show without taking any help from other persons

Table 7

Additional employment provided

Name of the Sector	*Persons employed*						
	Nil	*1*	*2*	*3*	*4*	*5*	*Total*
Industrial Units	2	1	1	2	-	4	10
Servicing Units	6	3	1	–	–	–	10
Business Units	6	4	–	–	–		10
Total	14	8	2	2	-	4	30
Percentage	46 7	26 6	6 7	6 7	--	13 3	100

Conclusions

It is the individual who has to take the decision to start and manage the scheme. It is observed that the beneficiary in many cases selected the unit without properly evaluating the feasibility and profitability of the unit which he would like to establish His decision is haphazard as well instant Though the DIC officials are expected to guide the beneficiary in selecting a viable unit, their participation in this regard is found to be unsatisfactory

The selection of the candidates should always be on the basis of merit But many of the beneficiaries were selected on political consideration and not on merit Such beneficiaries are not really interested in managing the unit on profitable lines. This ultimately led to non-payment of loan instalments as scheduled and as such the spirit behind the scheme is vitiated.

In many instances the beneficiares selected are not really deserving cases For example, the beneficiary under the District Rural Development Agency (DRDA) and such other schemes are selected once again under Gramodaya scheme Consequently, the beneficiary does not evince the required attention and interest due to which, the desired results are not realised

The beneficiary has to submit a number of certificates such as income, caste, training, experience and age certificates. In such cases he had to go round the officers who take their own time to issue them.

Too much emphasis is put on theoritical training rather than imparting technical training to the beneficiaries. Besides, the existing institutional and organised training programmes are not adequate

The DIC and the bankers are the implementing agencies But the team is not well-knit there is not enough co-ordination. At various stages the beneficiaries require suggestions, guidance and support which is totally absent

The initial investment provided by the authorities is quite insufficient Besides initial investment, working capital is a must. But no working capital provision is made in the loan arrangement

Suggestions for improvement

The selection of the unit to be started by the beneficiary should be systematized The feasibility and profitability of the unit have to be evaluated on scientific lines by the beneficiary under the supervision of concerned DIC officials The decision of selecting the unit should not be left to the choice of beneficiary in cases where he has no thorough knowledge.

The involvement of politicans has to be totally avoided in the selection of beneficiaries He should be selected on his merit only

Beneficiaries who were already benefitted under schemes other than Gramodaya should not be considered to avoid duplication For this the DIC officials can secure a list of beneficiaries of various schemes for DRDA and such other agencies Beneficiaries included in this list should not be considered for selection under Gramodava Scheme

There should not be too much emphasis on the submission of certificates Necessary measures may be taken to avoid inordinate delay in scrutinising the applications and sending call letters to the beneficiares. The rules, regulations and norms already fixed have to be interpreted and followed in their true spirit and to the advantage of the beneficiary

Strict adherence should be made as regards the time-schedule in grounding the unit so as to avoid cost escalation in the project costs Further, the project profiles have to be reviewed and revised regularly so that they can reflect the current price levels and as such the beneficiary will be knowing the exact cost of the unit he proposes to undertake

Provision for working capital should be made in the loan arrangement for smooth running of the unit This will help the beneficiary to rid himself from the burden of arranging loan for working capital

Emphasis should be on giving technical training rather than imparting theoritical knowledge to the beneficiaries The existing institutional programmes to train the entrepreneurs have to be further strengthened and expanded

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over 15 lakh persons including 12 lakh enumerators would be involved in the first phase of census operation.

The first phase will be only a prelude to the actual census which will be carried out between February 9 and March 5 next year. The sunset of 1st March will be the reference time of the census. Enumeration of houseless persons will be done on the night of February 28. The provisional figures of 1991 census will be released by March 15. Later, the final figures and analysis will come out in several volumes.

All information collected as part of the census will be treated as strictly confidential. Any data collected in the census will not be used against or in favour of any person. The reason for this confidentiality is to discourage people from giving incorrect data under the wrong notion that it would help them in obtaining rations, communal reservation or for any other benefit At the same time it will give confidence to the people to give correct and reliable data as it will not be used against any of their interests. The data collected during census are not open for inspection for any outside agency or department and cannot be taken to any court of law under Section 15 of the Census Act, 1948.

(Courtesy : PIB)

(Contd. from page 18)

islands Established in 1976 the Andaman Adim Janjati Vikas Samiti an autonomous body provides them protection and ensures their physical survival and growth. The Samiti has been assigned the task of looking after the welfare of the primitive tribes Hundred per cent grant is given to the Samiti for implementation of socio-development programmes for the primitive tribes. The Tribal Cultural Research and Training Institute, Hyderabed has formulated an action plan for the development of the Andamanese Onges and Shompen tribes. The action plan is being implemented by the Samiti.

An expert group has also been constituted by the Administration to undertake a long term study on the socio-cultural pattern of the tribal population, their living style, occupation, health conditions, nutritional status etc. Systematic studies have also been initiated on tribal languages and dialects. The Administration has constructed a rest house "Adibasera" at Port Blair for the tribal people who visit the town for medical treatment and other purposes. Some permanent dispensaries have also been set up in tribal areas for their treatment.

The pace of modernisation among the tribes in the Islands is extremely slow and one hopes that the tribals in the islands will be able to preserve their culture and heritage and also avail themselves of the fruits of development. For this, the need is a careful planned, systematic process of modernisation.

(Courtesy : AIR)

Looking Ahead

The upcoming steel plant at Visakhapatnam

John Chorchill

INDIANS KNEW THE ART of metallurgy as far back the fourth century. The iron pillar near Qutab inar which seems to have been erected in the 12th ntury is still a metallurgical wonder and testifies to e skill and craftsmanship of our metallurgists of at period. It has withstood the ravages of time for out eight centruies.

Yet another metallurgical marvel of this century ill be the public sector Visakhapatnam Steel Plant ıen it is fully commissioned. It is a marvel because orld-class technology has been incorporated in it. ıe upcoming steel plant will also be a major ıdmark on the country's industrial map in general d in the steel sector in particular

But the making of the Visakhapatnam steel plant s not been a smooth affair. Conceived as an ıbitious project and carried out with Soviet ıistance, its foundation stone was laid in the port y of Visakhapatnam in Andhra Pradesh way back in '1

For the next eight years nothing much had ppened But in the middle of 1979, the Central vernment gave approval to the setting up of the ınt. Originally, it was intended to have a production pacity of 3.4 million tonnes of liquid steel, and nmissioned by 1987 The Steel Authority of India, IL, was to execute the project. However, in 1982, a w public sector company, called Rashtriya Ispat gam Limited, was set up to raise the project and ıstruction started in early 1982 But the project ran o several hurdles and the pace of the work suffered vitably resulting in cost escalation. The project s reviewed again in 1984 By this time the estimated st escalated to over 7,400/- crore rupees, that is by 10 crore rupees over the earlier estimate of nearly 0 crores. At one stage, it was feared that the entire ject may have to be scrapped. However, the ntral government finally decided to go ahead with project with some modifications. It adopted what alled a revised rationalised concept, under which capacity of liquid steel production in the plant ıs reduced to three million tonnes from the original million tonnes.

Hurdles

Under the revised concept, the first phase of the ınt under which 1.5 million tonnes of liquid steel re to be producted, was scheduled to be nmissioned by 1988 and the second phase with an ntical capacity was to be completed by June 1990. t these targets could not be kept because of several tors. According to the project officials, some critical equipment from the Soviet Union did not arrive in time; the Andhra Pradesh government also could not complete the Yeleru Canal Project to feed the steel plant reservoir in time. Yet another hurdle was the numerous contractors who were to supply various equipment. It is incredible, but true that as many as three thousand public sector firms are supplying different kinds of equipment to the Visakhapatnam steel plant.

A number of major units of the project, such as the power plant,.the raw material handling system, a coke oven battery complex, sinter and oxygen plants have already been commissioned. The prime metallurgical unit, the blast furnace no. 1, has also been commissioned recently. Incidentially, the blast furnace is the biggest of its kind in the country today, having a capacity of 3,200 cubic metres. In addition, the average coking time, the productivity of the sinterning machine and of blast furnace as well as the turnout from rolling mills are expected to be more in quantity and better in quality. Another distinguishing freature of the Visakhapatnam Steel Plant is seven metre high coke-oven batteries which have dry quenching facilities and can crush coal selectively. Most of the work of the first phase has already been completed and more than 90 per cent of the work of the second phase is under way The unique feature of this most modern steel plant is its system of extensive recovery of waste heat and eqaually extensive pollution control.

Less work force

The Steel plant can also boast its low work force. The whole plant will require only 13,000 personnel as against upto 55,000 in other steel plants. It will get iron ore from Bailadila mines in Madhya Pradesh. Its requirement of coking coal will be supplied by the colliers in Bihar. Iron ore of Bailadila is of a very superior grade and is now being exported to other countries. It will now be possible to utilise it at home in Visakhapatnam plant to increase steel production in the country. The plant has also set up its own captive power unit which will meet emergency power needs. The plant is already producing many major bi-products like ammonium sulphate, different varieties of tar products and several other useful inputs for a number of downstream industries.

With the full plant coming on the steel scenario of the country, India would be taking yet another step towards achieving self reliance in the steel sector.

(Courtesy: Spotlight AIR)

Nook and Corner

Students show the way

The future of any nation depends on how its youth power is channelised It is quite encouraging to note that a number of youngsters all over the country are taking keen interest in social welfare activities.

Recently the students of Sarah Tucker College for Women, Palayamkottai, Tamil Nadu, carrying the messages of the Red Triangle and slogans against social evils marched through five villages The idea was to create mass awareness among the villagers about the need for adopting small family norm and fighting against evil customs At every village, the people were assisted in identifying various areas of coordination with the Family Welfare Bureau

And in U.P., the students of Govind Vallabh Pant Degree College, Kachhia (Badaun) organised a 10-day NSS Camp at Village Piprol. During this camp, the students constructed a 60-metre long road linking the village with the main and repaired a 200-metre approach road They cleaned the village About one hundred people were taught to sign their names 700 saplings of a variety of plants were planted Films relating to different aspects of development schemes were also exhibited

Freed Silk Weavers of Dharamvaram

Thanks to the exploitation by some master weavers, those engaged in silk industry in the "silk town" of Dharamvaram in Andhra Pradesh, has had a miserable life. With their meagre earnings they could not make both ends meet. Ultimately the co-operative spirit came to their rescue Several Silk Weavers Cooperative Societies were formed to save the poor weavers from the clutches of the master weavers These cooperative societies have been reorganised by merging two/three societies into one and making them economically and administratively viable The societies are now arranging purchase of raw materials and their distribution among the member weavers. They have been affiliated to the Andhra Pradesh Handloom Weavers Cooperative Society and the All India Handloom Fabrics Marketing Cooperative Society, Bombay These two Societies are arranging market for finished goods and paying remunerative prices The Societies pay more wages ranging from Rs 20/- to Rs 50/- per weaver Besides, dividends are also paid to the member weavers of the society for their shares. There is also provision for cash incentives to the producers. This is about 10% of the total wages earned by a member weaver in an year.

Immunize them young

While the average longevity of people in Europe is 75 years, it is 55 in India About 22 million children are born in the country every year One in every ten dies even before one year. As many as half of these infant deaths can be avoided by immunizing them

Infectious diseases cause many deaths among children Six common diseases have been identified and they can be checked by timely immunization. A programme has been taken up to immunize all children 2000 AD has been fixed as the target date for universal immunization The facilities are available in all the Public Health Centres and sub-centres. The diseases are tuberculosis, diphtheria, whooping cough , tetanus, poliomyelitis and measles

Change for the better

Shifting loyalties does not pay in the long run. But not so in the case of farming Shri Tapa Siyum, of Janering Village in the upper Subansiri district of Arunachal Pradesh was jobless for a long time. To eke out a living, he took to farming in the traditional jhum style But the outcome was not encouraging. He could not even maintain the family He discussed his problems with the Block authorities They advised him to start a horticulture farm and give up the *Jhum* way of cultivation. With the loan and subsidy received under IRDP, he raised 600 orange plants in two acres and 18,000 cardamom plants in 10 acres of land Rs 10 000 was spent This has been a rewarding experience for the IRDP beneficiary. He is thankful to the Block authorities for taking him to the right path

The Undaunted Youth

Here is a story of a never-say-die disabled young man Shri Shanker Das of Pasena village in the Sarguja district of Madhya Pradesh, though disabled, would like to depend on himself. Shri Das refused to be registered as a disabled man to get monthly dole from the Government He took loans under a development scheme and procured a sewing machine and a tri-cycle He got himself trained in different vocations like carpentry, sewing, painting and doll-making. Now he is making different products and sells them in the nearby villages in his own tri-cycle. He earns enough to support his family.

Book Review

Economic Problems of Developing Countries

Disarmament leading to cessation of arms race and industrialisation of developing countries in order to eliminate gnawing poverty in these countries are the two most urgent problems of the modern world. The relationship between the two can be gauged by the fact that the increment in the global production of goods and services between 1960 and 1983 equalled US $ 8,400,000 million whilst in the same period more than US $ 14,000,000 million were spent world wide for military purposes. Such wastages of resources are taking place at a time when more than 1,000 million persons live in abject poverty, 800 million are chronically hungry, 1500 million have no access to medical assistance, 1000 million people–practically no houses and 2,000 million persons no access to clean drinking water Unless the industrialised countries become concerned about the enormous humanitarian challenge and take earnest intrest in harnessing the finacial and technological support to the suffering teeming millions of the deprived world,the future of mankind itself is very dismal.

The programme for industrialising the developing countries at the early stages of their developmental activities requires vigorous mobilisation of domestic savings,harnessing of indigenous resoures,and introduction of appropriate technology in well integrated long-term goals;there also is the necessity for massive influx of external financial and technological support. As most of newely emerging nations had been erstwhile colonies of west European countries, their economic, financial and industrial relationships with these countries, have remained intricately linked with them

An example of close techno-economic relationship can be seen from the large number of joint ventures entered with industrial enterprises from the industrialised countries. By the mid-80s, the western industrialised nations had invested US $ 150,000 million in the economies of the developing countries where about 28,000 subsidiaries of the western firms operate presently. The transnational corporations controlled nearly 40 per cent of the industrial output of the newly independent countries and about half of their foreign trade. Since the late 60s, the governments of developing countries had become stricter in granting such privileges to the foreign firms Consequently, the scope of the expansion of foreign firms subsidiaries was markedly reduced, specially due to the wave of nationalisation measures and adoption of more rigorous investment legislations. The containment of foreign investments however took other forms under which the total foreign investment or the share of the stock was in minority; the sale of licences and the provision of training of local technicians and supervisors began to play more important role In cases where the possibilities of the enterprises in host countries in entering export markets were, at least the initial stages, very restricted, foreign collaboration and capital investment was permitted Such enterprises were necessarily technologically more complex sectors of the manufacturing and extraction industries This line of approach is evident from the fact that over 61 per cent of US investment in developing countries in 1984 went into machine building, metal working, chemicals, iron and steel as well as in oil prospecting, extraction and processing industries. Some countries have increasingly pressurised the transnational corporations to increasingly participate in the manufacture of components in the host countries themselves. For example, in the early 70s, the share of local products in the total cost of parts and components used by subsidiaries of the United States Corporations in Brazil and Mexico amounted to 76 per cent and 69 per cent respectively. The component quote of locally-made parts in the automobile industry of Brazil gradually increased to almost 100 per cent by the middle of 1970s

As a result of such collaboration deals and foreign investment measures, significant structural impact has occurred in the developing countries. Exidently the level of industrial production has increased in these countries and they have acquired increased share in international commerce In 1970, exports from developing countries of the world amounted roughly to 15 per cent of their GNP which by the middle of 1980s increased to 26 per cent.

The exports of developing countries comprise primary products as well as engineering and manufacturing products Presently, about 37 per cent of the US direct investment in these countries is in the manufacturing industries. In 1984, the exports of manufactured and semi-finished goods from developing countries were of the level of US $ 147,000

The concentration of multinational in those items which are needed by the mother countries can even be assessed by the fact that 40 per cent of the world trade in iron ore is of an intra-firm nature and another 40 per cent is affected under long-term monopoly contracts. The bauxite and aluminium trade in world market is monopolised to an even greater extent by such contracts. In the banana trade, the largest three transnational corporations account for about 70 per cent of the total sales. A single company controls one-quarter of the world trade in cocoa and another company 80 per cent of that in diamond.

Such monopolistic control over various items which enter in substantial proportion in world trade does not enable the developing countries to reap the maximum advantage for themselves. On the other hand, the disadvanteges occurring due to serious

market flucturation are passed on the them. As the developing countries depend on the exports of raw materials and other industrial inputs for more than three-quarters of their total exports revenue, their vulnerability to fluctuations in world commodity prices is considerable. In 1986 alone, the terms of trade of the developing countries with developed states worsened by 30 per cent leading to a loss of nearly US $ 94,000 million. The ability of the multinationals in controlling the world prices in such commodities has been a major cause of the setback experienced by the developing countries.

The industrialisation process in the developing countries along with considerable emphasis on creating scientific infra structure and provision for education and training of scientific personnel have led to the formation of a well qualified cadre of skilled work force. But the advantages of skilled personnel instead of nourishing the emerging industrial society in developing countries flow to already advanced countries. The brain drain, as this migration of skilled personnel form newly free states to developed countries is known, involves ever increasing categories of scientists, engineers, and other specialists and geographical scope of this migration has been expanding to the increasing hardships and shortages in the developing countries. The growing need of foreign exchanges and increasing unemployment pressure at home coupled with more attractive work conditions for the individuals concerned have gradually made streamlet of migration a torrent of outlow. This has happened so, specially after the early 1980s. On the basis of UNCTAD data, the total amount of fund transferred to ten developing countries which are major suppliers of labour to world market grew US $ 1,600 million in 1975 to more than US $ 11,500 million in 1982 whilst its ratio to the aggregate imports of these states increased from 8 to 26 per cent. The outflow of skilled personnel to oil exporting countries has been increasing substantially. Boris Portiriev has estimated that the skilled personnel accounted for about 4 per cent or 80,000 persons out of the more than two million immigrants arriving every year in Saudi Arabia, Kuwait, the United Arab Emirates and Qatar About 90 per cent of these labour migrants have been of the unskilled and semi-skilled and workers although the share of qualified personnel is gradually increasing The migration to developed countries however is of the category of skilled and professionally personnel. Professionals accountred for 40 per cent of the total number of the immigrant labour hired in the United States in 1961 which grew to 75 per cent in 1970. According to official data of the US Immgration Service, 150,000 specialists from newly independent states were employed in the United States in the early 80s, of whom more than 45,000 were from Asian countries Apart from these, the bulk of illegal immigrants and the students not returing home after their studies have augmented this flow. Out of 40,000 persons from developing countries who studied in the United States in 1966 77, over 27,000 or more than two-thirds did not return home The figure for the Asian countries accounted for an average of 75 per cent though for Lebanon it amounted to 99 per cent, Taiwan and Korea 80-90 per cent whilst for India the figure was 78 per cent ; for Latin American countries the figure was slightly lower, amounting to 66 per cent for Jamaica during 1977-1980 and about 50 per cent for the region as a whole. About 60 to 75 per cent of Arab specialists permanently residing in the United States are not even officially considered immirgants.

As a result of brain drain, atleast 500,000 scientists, engineers, and doctors from newly independent states, or 20 per cent of the total, presently work in various advanced industrial countries of the west. According to UNCTAD secretariat, the emigration of certain categories of professionals ranges from 20 to 70 per cent of the annual graduation. Docotrs constitute the main categories of specialists who remain in OECD countries after completing their studies.

The impact of this level of brain drain on the national economy of the developing countries is very adverse qualitatively as well as financially An estimate has put the total gain from the brain drain to the United States alone to the tune of about US $ 6,000 million annual averages at 1975 prices. Adding to this the gain accruing to the OECD countries of which the priamary beneficiaries are the United Kingdom and Canada, the overrall gain derived annually to these countries from the brain drain could work out to be about US $ 10,000 dolloars at 1975 prices.

The loss to the developing countries from which these doctors, engineers, and skilled personnel have migrated has been estimated at US $ 8,000 million annually excluding the socio-economic losses which cannot be evaluated in termsj of money This kind of brain drain at a time when on an average 25 million people including 13 million children die in developing countries every year from infectious diseases alone without receiving proper medical assistance and care is really pathetic.

The underdeveloped countries suffer from another kind of drawback resulting from the industrial and commercial programmes of the developed countries The various industrialised countries are encouraging directly and indirectly such alliances even among the developing countries which are not of enduring advantage to them Forgetting the objective of self-reliance and the long-term goal of poverty alleviation in their own countries, many developing countries are receiving foreign capital in those sectors which integrate their economies inextricably with the industrialisation and other social programmes in western countries. Such relationships even engender political tensions Specially in this context, one could consider the growing menace of superpower conflict brewing in the Pacific region This area, specially the ASEAN group of countries, have valuable commercial and strategic raw materials which are greatly required for military and commercial purposes in the west. Increasing interest of the United States and Japan which has even induced them to channelise vast amount of investment resources, financial

assistance and military alliances is an indicator in the present context. The external debt which was originally intended to salvage the developing countries from their resource scarcity has grown to such magnitude that it has almost shaken the very foundation of their development efforts. Their foreign debt reached an astronomical US $ 1,200, 000 million. This external debt cost them more than US $ 100,000 million a year in interest payment alone. On the whole, interest payments by the developing countries range for 20 to 40 per cent of their exports It shows that they would not be able to overcome the difficulties even if they mobilise their utmost to industrialise and develop their resources. The freedom from economic bondage is the emerging task before the developing countries.

Many of these problems have been studied and presented in various essays edited by Ernest Obminsky and prepared by the research establishments of the Soviet Academy of Sciences. As far as the shortcomings of the various relationships between the developing countries and the western democracies are concerned the study has highlighted many of them well, but on the repercussions of the Soviet and Chinese commercial and trading policies the study is completely silent. The rigidity and the terms of integration that the Soviet Union and other centrally directed economies have produced also require to be studied with as much care as the repercussions of the western policies and programmes. But the difficulties in this regard are accentuated by lack of adequate data. The publication could and should have helped in this respect but it has failed to do so. Nonetheless, the problem of development of the developing regions of the world is of importance and it requires to be examined from various viewpoints.

Bepin Behari

Sickness in Industrial Units by Nafees A. Khan, published by Anmol Publications, New Delhi; Pages 131; Price Rs. 150.

The rapid and large scale industrialisation following the independence though impressive, has also resulted in large scale industrial sickness The magnitude of industrial sickness has grown out of proportion.Industrial sickness ramains the cause for great concern, especially in the small scale sector. Till the end of 1987, there were 1,60,262 sick industrial units in the country, out of which 1,58226 units were in the small scale sector The problem of industria sickness and the need to take steps for the revival o such units have been engaging the attention of th government, planners, economists and the financia instiutions alike for quite sometime.

In this context, the present book is a very timely attempt by its author, and is one of the very few publications available on this subject. The author defines industrial sickness, deciphers the various causes of industrial sickness and analyses and assesses the impact of various measures adopted by entrepreneurs, financial institutions, governmen and other related agencies with a view to reducing the degree of sickness, if not eliminate it totally. The usefulness of the book is further enhanced by the foreword written by Dr Abid Hussain, former Member, Planning Commission The book consists o 10 chapters, besides 2 Appendices and Bibliography The role of industrial units in the socio-economic development of India has been highlighted in Chapter One. An attempt has been made to define industrial sickness in the Chapter Two. The symptoms of industrial sickness have been identified in Chapter Three. The Chapter Four reveals the incidence of sickness in the indsutrial units. The various causes of industrial sickness are described in Chapter Five. The Chapter Six outlines the legal, operational and Proceedural measures to minimise the degree of the indsutrial sickess. The various Committees constituted to deal with industrial sickness, have been given in Chapter Seven While Chapter Eight includes a compartitive study of industrial sickness in India and Japan the case studies of selected sick indsutrial units have been given in Chapter Nine. The conclusion and suggestions have been given by the author in Chapter Ten. Besides, a rich Bibliography at the end of the book and rich references given at the end of each Chapter, have added to the usefulness of the book immensely The publishers deserve to be complimented for doing a fine job of printing and bringing out this book in hard cover. However, the book is very highly priced and, therefore, may not have a wide readership Nevertheless, it will serve as a reference book on this subject and would be usefu to the industry, the corporate sector, the planners researchers, managers and others who may be associated with industrial sickness.

Dr. Mahendra K. Pandey

Defence exports exceed Target

A wide range of defence equipment and stores worth over Rs. 80 crores were exported in 1989-90. This is over Rs. 10.5 crores more than the target. Defence production units have on their own laid down export performance objectives in their Annual Action Plan.

I.O.C. develops new lube formulations

Indian Oil Corporation's (IOC) Research and Development Centre at Faridabad, developed 91 formulations during 1989-90. They cover automotive and industrial lubricants, greases, metal working oils and speciality products. These also include 15 new products, such as SAE 5W-30 automotive engine oil for operation in sub-zero temperatures, hydraulic oil for ships, and conveyer chain lubricants for LPG plant.

Set up in 1972, the Centre has been continuously engaged in research and development activities in areas pertaining to lubricants and specialities, fuels, refinery processes, waxy crdue transportation and material failure analysis. The research capabilities of the Centre have enabled Indian oil to indigenise nearly 95% of the lubricants marketed by the Corporation, resulting in substitution of imported products, and consequent savings in valuable foreign exchange. During the year the Centre received approvals from 21 engine builders for various products developed by it.

Small savings go up

There was 40% increase in the net small savings collection including Public Provident Fund in Post Offices during the last financial year. It was Rs. 7,700 crores, which was Rs. 2,204 crores more than in the previous year.

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**Yojana: 33 years ago
(6th June, 1957)**

Youth Enterprise

This story has 200 heroes and they all are school boys. Two hundred cadets of the Auxiliary Cadet Corps of Ranchi in Chhota Nagpur area of Bihar spent a week in a camp far away from the hum drum city life. Nagpheni which is 50 miles away from Ranchi, must be thanking its stars that the boys invaded and occupied it for a week. The cadets found themselves in an earthly paradise, full of lush tropical foliage and mango groves sleeping blissfully on the bank of a river. But this beauty spot which has so much to offer to the visitor and the tourist is almost unapproachable. The young boys accompanied by their teachers and led by Captain Harbans Singh decided to do their bit to improve the situation. They threw themselves into the task of laying out a three-mile road and finished it. Their eagerness and energy being still far from exhausted they took a bigger and more difficult job. The State Government long aware of the possibilities of Nagpheni, had approved the building of a youth hostel there and offered financial help. But this help was not enough to cover all the expenses. So the visiting boys undertook to make bricks for the hostel and within a week 150,000 bricks were ready.

Those who live in cities and well developed towns cannot realise what a difference a road can make in the life of a village. The people of Nagpheni can now post their letters easily, do their marketing conveniently and, at times of emergency, reach a doctor or a police post more quickly. The Youth Hostel of Nagpheni when completed will always remind the villagers and the visitors of the hard work put in by the tender hands of the little boys of Ranchi.

A new home for the Adivasis

Near Ambavidiya in Udaipur district a new village was born with the name of Amritnagar. It is a settlement of 89 Kathodia families, an aboriginal tribe of the district.

The people of this new village lived hardly four years ago a life of nomads on semi-starvation standards. The village which is now a new home is situated in the midst of a thick forest between two parallel hills of the Aravali range. The site is abundant in natural resources and the soil is very fertile.

For long these tribes who were skilled in manufacturing Katha-Catechu from the bark of the Kher trees were being exploited by selfish contractors. Simple and ignorant as they were, they had hardly any hope of freeing themselves from the grip of money-lenders. Now they will get finanical assistance for the purchase of bullocks, seeds and implements and every family will have an agricultural plot free of all charges which they can cultivate. In addition a co-operative society has been organised which looks after the rehabilitation work and trade of forest produce. Their children can now go to a school.

Government seeks the co-operation of those who buy and those who sell

The 1957-58 Budget proposals seek to raise the Union Excise Duties on tea, coffee, matches, sugar, paper and vegetable oils by a small fraction over the existing levels. That the increases are slight will be plain from the following schedule:

Sugar-by 5 np per 1b, Tobacco-generally by 13 np per 1b.
Vegetable oils-by 2 np per 1b.
Ordinary writing paper-by 1½ nP per quire.
Matches-by 9/10th nP for a box of 40 sticks
by 1-2/5th np for a box of 60 sticks.

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DEVELOPMENT DIARY

INSAT–1D lauched

India's INSAT-ID communication satellite was successfully lauched on 12th June 1990, from the Eastern space and Missiles Centre, Florida, U.S.A. The Master Control Facility at Hassan in Karnataka acquired the satellete telemetry signal. The separation of the communications satellite was commanded from there.

INSAT-1D is a multipurpose operation al satellite similar to INSAT-1B and INSAT-1C which are already in orbit. It is intended to replace INSAT-1B which is coming to the end of its useful life.

The Indian National Satellite (INSAT) system is a jouint venture of the Department of Space, Department of Communications, Meteorological Department, All India Radio and Doordashan. INSAT is designed to provide operational services in telecommunications, meteorological observations and data relay, nation-wide television broadcasting, radio and television programme distribution, disaster warning for coastal areas etc.

INSAT satellites are maintained and controlled from the INSAT Master Control Facility (MCF) at Hassan.

INSAT-1D is the ninth Indian satellite to be launched from foreign soil and the third to enter its space home from the United States.

Developmental activities for Universities

Universities have been advised by the University Grants Commission to develop linkages with agencies and institutions outside the university system, particularly those devoted to research and development to make university education more meaningful. They will be encouraged to adopt some of the emerging areas in science and technology relevant to social and economic developments like electronic science, computer science, bio-technology, oceanography, environment and energy studies.

UGC assistance to the universities for development of undergraduate and post-graduate teaching and research facilities under the institutional development schemes during the Eighth Plan have also been modified. 100 per cent assistance will be provided in respect of library building and women's hostel.

NAA Record

The National Airports Authority which celebrated its fourth anniversary on June 1,1990 can look back with pride its track record. During the four years of its existence, NAA opened four new airports at Shimla, Agatti, Calicut and Pondicherry. Tuticorin and Salem airports are under construction. Thirteen airports have been commissioned for Vayudoot operations. Runways/pavements have been extended and strengthened at several aerodromes for operation by Boeing-737. Communication and radio navigational facilities, so vital for the safety of flights, have been improved and augmented.

During the Eighth Five Year Plan, NAA has programme with a total layout of over Rs. 988 crores for new works and modernisation of some of the existing aerodromes at Bombay, Delhi, Calcutta, Madras and some other places.

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The Independence Day Special issue, 1990 of Yojana is devoted to Rural Development. Eminent economists, sociologists, administrators, environmentalists and authors from all over the country have contributed articles on various facets of Rural Development. We hope these will be stimulating.

Readers are requested to place their orders with their agents or get in touch with the Business Manager for their copies.

The Special issue combines Aug. 1-15 and 16-31 issues. Price-Rs. 4.

Hastening Industrial pace

Manjunath

THE GOVERNMENT OF INDIA'S industrial policy, framed originally in 1956, has over the decades gone through many modifications. The latest to do so is Shri Ajit Singh, Minister of Industry, who unfolded a new set of policy measures in Parliament recently. Even though some of the priorities or strategies have changed, there has been no deviation from the original perspectives. Self-sufficiency in critical items, the commanding height of the economy for the public sector, core industries almost exclusively in the public sector, balanced regional growth, indigenisation, encouragement of agro-based industries, etc., still remain the main objectives of India's industrial policy framework.

One of the greatest challenges that the framers of India's industrial policy have faced in the past and continue to face even now is the harmonisation of the apparently conflicting interests of the large and small scale sectors. While small industries keep asking for more and more concessions and incentives—fiscal and otherwise— there is no let up in the demand of the large scale sector for more and more liberalisation. It indeed calls for a great deal of skill in adopting a policy that enables both the small and the large scale sectors to grow together resulting in balanced alround development.

The package of measures that Shri Ajit Singh has unfolded contains a lot of incentives for both the large scale and small scale sectors. He has taken a great step forward towards delicensing of large scale industry and to free it from a variety of regulations. At the same time steps have been initiated to enable small industries to grow, increase their flow of funds and remove procedural constraints which hinder their growth. The rules relating to the participation of foreign equity have been relaxed and technology imports made easier

The policy statement is not an instrument of action in itself, it merely lays down the guidelines. Action has to be based on specific legislative measures or executive decisions. There are various enactments like the Industries (Development and Regulation) Act, the Monopolies and Restrictive Trade Practices Act, the Foreign Exchange Regulation Act, the Companies Act and a plethora of other laws to regulate industrial growth. There are also other pieces of law to deal with sick industries and laws on industrial relations. The maze of laws often comes as a hindrance to the development of industries. The Government therefore has been rightly thinking of reducing regulations and leaving industries alone.

Procedural webs

The web of laws through which all applications for setting up new industries or expanding existing ones have to be routed are so complex that more time has to be spent by managements on keeping books than in production. Not unnaturally it has been a long standing demand of both the large and the small scale sectors that procedural complexities and paper work should be cut down drastically The other complaint is about the multiplicity of agencies to which entrepreneurs are required to run to get matters move.

No doubt many holes have been picked in the industrial policy and the regulations on licensing, registration, etc. No policy is foolproof; every policy needs to be updated in keeping with changing times and requirements. What may have been necessary for the small or the large scale sector yestereday may be redundant today. No industrial policy can be immutable. It is therefore in the fitness of things that the National Front Government has announced a new set of policies to keep pace with the changes in the needs of industry.

The small scale sector not only wants incentives in various forms but also reservation of an ever increasing number of products for manufacture in small scale units. The number of items exclusively reserved for production in the small scale sector has now been raised to 836. More products are expected to be added to the list. The large scale sector on the other hand swears by the principle of economies of scale to press for dereservation of items reserved for small scale sector. Some large units have not hesitated to encroach into the domain of the small scale sector in violation of the law. The Government keeps grappling with the problem of striking a balance between small and large— and there is medium in between— industries.

Major change

The first major change in the 1956 policy took place when the Janata Party came to power in 1977. The main attempt was to curb the growth of monopoly houses and to encourage the small scale sector. It

was during the first Janata Government that a new sector called the tiny and village sector was created to encourage small artisans to take to industrial activity A major step taken then was the setting up of district industries centres (DICs).

The main objective of DICs was to provide all the services required by small entrepreneurs through a single window. It was a common complaint of small entrepreneurs that they were put to a great deal of harassment by being required to knock at too many doors to get things done. The Government felt that if all the agencies whose services were needed by the small scale entrepreneur could be brought under a single roof, the woes of the entrepreneur would be over.

Representatives of units dealing with electricity, raw materials, water, land, finance and marketing were all brought under the umbrella of the DIC. The concept was ideal but its implementation has left a great deal to be desired. In the absence of proper authority, the representatives of various departments brought together in the DIC are often unable to take decisions. They function often as post offices where matters ~~do not~~ move without speed money. Various committes have gone into the working of the DIC and come out with voluminous reports. The problems still persist.

The Industrial Development Bank of India plays a major role in the development of industries, large, medium and small. It monitors the health of industrial units which have utilised its services, and is considered well qualified to recommend policy prescriptions. The IDBI gives refinance and rehabilitation loans for the modernisation and upgradation of existing units at concessional rates of interest It has liberalised the seed capital scheme. Apart from various assistance schemes, the IDBI takes up promotional schemes to hasten the growth of small scale units and of small entrepreneurs.

It was a former IDBI chairman who first came out with the suggestion for setting up a new apex finance organisation to cater specifically to the needs of the small scale sector. The Government accepted the suggestion and some time ago set up the Small Industries Development Board of India (SIDBI) The IDBI has also suggested that incentives to the small scale sector should be tapered off in order to facilitate graduation smoothly from small scale to medium units. It has also been advocating for creating infrastructure facilities to attract industries to no-industry districts.

The multiplicity of forms, procedures and agencies comes in the way of the smooth functioning of small entrepreneurs who are often weighed down by the requirements of the law to maintain a large number of account and other books. There is scope to streamline procedures and forms, which in turn would cut down delay and cost in setting up units. It is sometimes the cumbersome procedure that leads to sickness of industry and diversion of funds fron efficient to less efficient use, says the IDBI.

Fresh lool

It has suggested a fresh look at the concession available to small scale units. Concession shoul relate to turnover so that as soon as a unit crosses th threshold limit, it would be regarded as a unit whic has come of age. The concessions available to sma scale units sometimes outweigh what they would ge in terms of economies of scale by graduating into th medium scale. Expansion of medium scale uni would lead to cost reduction and benefit th consumer.

The main problem areas of the small scale secto have been identified as:

(i) upgradation of technology and keeping it u at a high level;
(ii) marketing of products;
(iii) rationalisation of the fiscal and taxatio regime;
(iv) establishment of organic linkages betwee small, medium and large scale units, and
(v) refining and tailoring the deliver mechanism for support through Centra State and voluntary organisations.

The policy parameters have been under constar review. From time to time the investment ceiling h been revised upwards. In 1985 the investment lim for small scale units was enhanced from Rs. 20 lak to Rs. 35 lakhs to take care of inflation, pri escalation, etc. In his policy statement in Parliame on May 31, 1990, the Industry Minister, Shri Ajit Sing made the announcement that the investment limit f small scale units in specified plant and machine would hereafter be Rs. 60 lakhs. For ancillary uni the ceiling would be still higher–it goes up from Rs. lakhs to Rs. 75 lakhs.

Small scale enterprises which export at least 30 p cent of their output by the third year after going in porduction will be eligible for further incentive They will be allowed to step up their investment Rs 75 lakhs in plant and machinery and continue enjoy the benefits to which small scale units a entitled. Along with the upscaling of tl investment limit for the small scale sector, tl Government has enhanced the ceiling for tiny ai village units from Rs. 2 lakhs to Rs. 5 lakhs.

But so far as the location of tiny and village unit concerned, the population limit of 50,000 as per 1981 census would continue The Government wo initiate measures to ensure a higher inflow of cre and other key inputs and also to impr infrastructural support to units in the tiny sector. T new priorities fixed by the National Front Governm also include expansion of the list of items reserved

production in the small scale sector. The Government is aware that many large houses have made inroads into the small scale sector but thinks this has to be dealt with by effective monitoring and imposition of penalties and not by relaxing the reserve list for the small scale sector

The newly set up SIDBI has been specifically directed to channelise need based higher inflows of credit, by way of both term loans and working capital, to tiny and rural industries. Commercial and cooperative banks have also been directed to take similar steps. A targeted approach is to be adopted to provide both sustained support to the small scale sector and to remove disincentives for their graduation to the medium scale and further growth.

The new policy promises the identification of locations in rural areas endowed with adequate power supply and intensive campaigns to attract entrepreneurs, provide them with all inputs they need and foster the growth of small scale and tiny industries Units which require a great deal of energy will not be encouraged; on the contrary non-power intensive industries would be encouraged in rural areas where power is a constraint

A new scheme of Central Investment Subsidy exclusively for the small scale sector in rural and backward areas would be devised so that higher levels of employment opportunities at relatively low investments can be created

A special programme will be launched to train women and youth in the art of running business. The Small Industries Development Board and the State Directorates of Industries would set up special cells to help women entrepreneurs and implement the Entreprenurial Development Programme

Many people including those in authority have voiced concern at the difficulties that small and tiny entrepreneurs have to face in maintaining a large number of account books,files and papers for inspection by an army of government inspectors particularly those belonging to the labour department.Under the new policy it would be possible to reduce the paperwork and the numbers of books to be maintained.The procedure is being simplified for the purpose.

The policy envisages the expansion of the Khadi and Village Industires Commission and the State Khadi and Village Industries Boards so that they are able to assist more and more artisans engaged in rural and cottage industries. In agro-processing industries greater stress would be laid on forging close links between growers and processors. This decision has been taken in the light of the experience in the sugar industry where the integration of cane growers and processing mills has paid good dividends

Under the new policy speical encouragement will be given to projects organised jointly by growers and processors through close cooperation and joint ownership Growers will be encouraged to set up processing units within the framework of the cooperative law The expectation is that such an arrangement would ensure the transmission of better technology for enhanced agricultural production The licensing mechanism would be streamlined in favour of locating industries in rural areas with a concentration of growers.

Another important step to be taken to promote agroprocessing industries is higher priority to the allocation of credit from financial institutions. In apportioning working capital banks will give higher priority to such industries than to the rest of the industrial sector Technology approval applications would be processed within 30 days of presentation to the Secretariat for Industrial Approvals.

Committing the Government to the active promotion of new technologies, the new policy stresses the importance of making Indian industry more competitive internationally. It also has to break the shackles of bureaucratic controls by reducing the clearances required to be taken from the Government While the Government will continue to examine large projects in view of resource constraintsts, decisions in respect of medium sized investment will be left to entrepreneurs. The deregulation measures will apply not only to new ventures but existing units can take their advantage.

Several steps have been initiated to achieve this objective. The foremost among them is the abolition of the licensing or registration requirement for all new units with investments up to Rs. 25 crores in fixed assets if they are located in non-backward areas and Rs. 75 crores in Centrally notified backward areas. The entrepreneur will be entitled to import capital goods up to the landed value of 30 per cent of the total value of plant and machinery required of the unit.

Raw materials and components can be imported up to the total value of 30 per cent of the ex-factory value of annual production. The ex-factory value of production will exclude the excise duty of the item of production. Raw materials and components on OGL will not be included within this 30 per cent limit. But for all licensable items of raw materials and components and the import licensing procedure will continue.

If an entrepreneur considers the import of technology necessary, he can conclude an agreement with the collaborator without having to obtain clearance from the Government. The royalty payment in such cases however cannot exceed five per cent of domestic sales and eight per cent of exports. If lumpsum payment is made, Government clearance will however be necessary, but a decision will be communicated to the entrepreneur within 30 days.

Some changes in the rules on foreign equity have been made in view of the need for the upgradation of technology. Investment up to 40 per cent of the equity will be allowed on an automatic basis. In such cases the landed value of imported capital goods shall not exceed 30 per cent of the value of plant and machinery. Such units which have foreign equity investment will have to conform to minimum economic size so that the investment leads to production of goods of international standards

The existing broadbanding scheme would continue with the modification that if no extra investment is needed, no clearance from the Government would be needed for production and sale of any item by the existing units. Items reserved for the small scale sector are however not included among them.

Such industries would also be exempt from locational restrictions except that they cannot be set up in or around metropolitan cities with a population of more than 40 lakhs. Except for non-polluting industries like electronics, computer software and printing, other industries will not be permitted within 20 kms of the periphery of metro cities. The State Governments will be free to regulate industrial locations keeping in mind local conditions and requirements and their respective spatial development plans. Environmental clearance will have to be obtained from the prescribed authority at the State level.

The new policy has delicensed 100 per cent export oriented units and units to be set up in export processing zones having an investment up to Rs. 75 crores. Such investment will be exempt from the convertibility clause applicable to financing by Indian financial institutions. Like other units the 100 per cent export oriented units or those located in export processing zones will not be entitled to manufacture items reserved for the small scale sector.

The decisions announced by the Industry Minister will be applicable to all manufacturing items in a specified list The list will follow the nomenclature of the Indian Trade Classification based on the Harmonised System. In each section of the classification, apart from the positive mention of approved items, those not permissible shall be specifically excluded from the benefits of the decisions. Approval of excluded items will be as per the existing industrial policy regime and procedure

Units set up by MRTP/FERA companies will be covered by the procedures set out in the policy but they will continue to need clearance under the provisions and regulations of these two Acts. The existing delicensed industries scheme, the exempted industries scheme and the DGTD registration system have been abolished.

Highlights of new industrial policy

* All new units up to an investment of Rs. 25 crores in fixed assets in non-backward areas and Rs. 75 crores in Centrally notified backward areas will be exempt from licensing/registration.
* 100 per cent export oriented units and new units in export processing zones delicensed up to the investment limit of Rs. 75 crores.
* Under the broadbanding scheme existing units will not have to obtain clearance from the Government for producing and selling new items if no extra investment is made.
* The location policy for such industries has been relaxed.
* Raw materials and components up to 30 per cent of the landed value of the ex-factory value of annual production to be permitted. Capital goods import up to the landed value of 30 per cent of total value of plant and machinery allowed.
* No prior clearance needed for foreign collaboration if royalty payment does not exceed certain limits. Foreign investment up to 40 per cent of the equity will be allowed on an automatic basis.
* Investment ceiling in plant and machinery for small scale industries raised to Rs. 60 lakhs and for ancillary units to Rs. 75 lakhs.
* Investment ceiling for tiny units raised to Rs. 5 lakhs.
* To ensure that investment leads to production of goods acceptable internationlly, units will have to conform to minimum economies of size.
* High priority to be given to agro-based industries. Special marketing agencies for the products of rural and cottage industries to be set up by the Centre and the States.
* Special emphasis on training women entrepreneurs. Youth also to be trained to set up industries.

The new industrial and investment policy

R.C. Ummat

THE MODIFICATION ANNOUNCED recently in the Industrial and Investment policy, which in some respects are quite sweeping, need to be commended. They have been well conceived and appreciated by industry circles, despite the fact that no increase has been effected in the threshold assets limit of the MRTP and FERA companies, which is warranted, among other things on inflation indexing.

The biggest virtue of the modified policy is that it carries the process of debureaucratisation, initiated in the early 1980s, a major step forward, besides seeking to promote the small scale and agro-processing industries in a more concerted manner than hitherto. The beneficial impact of the modifications should be felt right upto the medium scale production levels, leading to a significant increase in none-too-distant a future in the industrial growth rate from the post 1985 fairly accelerated pace.

Special emphasis has been placed in the modified policy on the promotion of small scale and agro-based industries for fostering employment, particularly in the rural areas. Partly due to this and partly in view of the inflation since 1985, the ceiling on investment in plant and machinery for small industrial units, which had been raised in that year to 35 lakh rupees after some earlier revisions from the original level of 7.5 lakh rupees, has been stepped up to 60 lakh rupees. For ancillary units, the new ceiling has been set at 7.5 lakh rupees, as against 45 lakh rupees hitherto. The small scale units which undertake to export at least 30 per cent of their annual production by the third year of their operations, are to be allowed to enhance their investment in plant and machinery upto 75 lakh rupees. The investment ceiling for the tiny industrial units has been increased to five lakh rupees from the present two lakh rupees. The policy of reserving items for exclusive manufacture in the small scale sector is to be continued. Presently, 836 items are covered by this scheme. More items for such reservation are to be identified.

Incentives

Much more significant, of course, are the other measures announced for promoting the growth of the small industries sector. These include the launching of a new scheme of Central Investment Subsidy exclusively for the small scale sector in the rural and backward areas. Others are programmes for modernisation and upgradation of technology and ensuring of adequate and timely availability of need-based credit both by way of term loans and working capital from the recently established apex bank for this purpose, namely SIDBI, and commercial banks as well as other financial institutions. The present fiscal concessions for small industries are to be reviewed to provide sustained support to it and to remove the disincentives for their graduation and further growth.

Equally significantly, suitable locations in the rural areas endowed with adequate power supply are to be identified to attract entrepreneurs. Arrangements are to be made for the supply of other inputs. Less energy intensive industries are to be vigourously promoted in the rural areas. The entrepreneurial development programme will lay more emphasis on the training of women and youth.

With a view to assisting the artisans engaged in rural and cottage industries, the activities of the Khadi and Village Industries Commission and the KVI Boards are to be expanded through strengthening them. Special organisations are to be created at the Centre as well as the state levels to provide marketing support to rural artisans, who are also to be provided concessional credit, free consultancy and training facilities.

Agro-processing

The growing importance of agro-processing industries has been recognised. The growth of these industries is to be promoted concertedly not only to contain the post-harvest losses, but also to meet the growing domestic requirements of processed foods and exploit their export potential. The approach enunciated in the modified policy for this purpose, i.e forging of close links between the growers and the processing units, with emphasis on joint ownership of the processing units, no doubt is judicious from the viewpoint of ensuring raw material supplies even in times of shortages. But much quicker and better results can be obtained through promoting ancillary relationship between the smaller primary processing units established in the rural areas where the

growers are concentrated on cooperative and individual entrepreneurship basis and the final processing and marketing units which shall have to be much bigger in size for effective marketing and quality production. This is of particular importance in so far as exports are concerned Besides according high priority to making available adequate institutional cardit to the agro-processing industries, the ensuring of approvals to technology proposals within 30 days of their submission to the Secretariat of Industrial Approvals in the department of industrial development is welcome.

For promoting industrial development in general, very significant modifications have been effected in **the areas of industrial licensing, foreign collaboration and investment, broad-banding and locational policy** While the policy of clearance of large units by the government is to be continued in view of resource constraint, decisions in respect of medium-sized investments have been left to the entrepreneurs themselves All new units upto an investment of 25 crore rupees in fixed assets in non-backward areas and 75 crore rupees in the Centrally notified backward areas have been exempted from the requirement of obtaining licence or registration with the DGTD Hitherto, this exemption was available to units upto 15 crore rupees in non-backward areas and 50 crore rupees schemes in the centrally declared backward tracts The present delicensed industries scheme, the Exempted Industries Scheme and the, DGTD Registration system have been abrogated. The import entitlements for capital goods as well as raw materials and components of the delicensed industries, of course, have been maintained, having been relaxed a couple of years ago, at the landed value of 30 per cent of the total value of plant and equipment required of 30 per cent of the total value of plant and equipment required by a unit and to the landed value of 30 per cent of the ex-factory value of annual production, excluding excise duty. The raw materials and components allowed to be imported under Open General Licence can be imported beyond this 30 per cent limit

Collaboration

Foreign technology collaboration can now be entered into without obtaining a clearance from the government,provided the royalty payment does not exceed five per cent on the domestic sales and eight per cent on exports. Lump sum payments, however, will require official clearance, which is to be provided within 30 days of the submission of a proposal. This has been done to have some check on the outflow of foreign exchange on account of royalty payments. Foreign investments upto 40 per cent of equity are to be allowed on an automatic basis In such cases also, the landed value of imported capital goods is not to exceed 30 per cent of the total value of plant and machinery.

The misgivings expressed in certain sections about the adverse impact the continuation of liberal imports of raw materials, components and capital goods may have on the domestic manufacturers of these goods and the balance of payments situation seem to be exaggerated Inefficient and indifferent quality indigenous production cannot be supported for all times.

To ensure efficient production in pursuit of attaining international competitiveness, the minimum economic scales of production are to be confirmed to in cases wherever prescribed At present, they are applicable to 108 industries The scheme of broad-banding has been improved in the sense that no official clearance will now be necessary for the production or sale, by an existing manufacturing unit, of any new item, provided such an item is not reserved for manufacture in the small scale sector

Locational policy

The locational policy has undergone a very drastic change. Instead of disallowing under the 1980 Industrial Policy Statement, location of delicensed indsutrial undertakings within 50 Kms of the standard urban area limits of any city having a population of 2 5 million or above and to varying distances upto 30 Kms in the case of towns and cities, the setting up of a new unit has now been debarred within 20 Kms of the periphery of only the metropolitan areas. This too is not applicable in the case of prior designated industrial areas and non-polluting industries such as electronics, computer software and printing The state governments, however, have been allowed to regulate industrial locations keeping in view the local conditions and requirements and their spatial development plans and town planning laws The environmental clearance, similarly, will henceforth be required from the prescribed authorities at the state level

As a major relaxation step, 100 per cent export oriented units or the units to be set up in the export promotion zones,have also been delicensed upto an investment of 75 crore rupees

A specified list conforming to the nomenclature of the Indian Trade Classification based on the harmonised system is to be issued, containing positive mention of approved items for production without licensing and specifically excluding those which will require official approvals as per the existing industrial policy regime and procedure. The units set up by the MRTP and FERA companies, of course, are to be covered by the procedure set out in the modified policy But they will continue to need the various clearances under the provisions of the Acts governing them.

As mentioned at the outset, various other aspects of Industrial and Investment Policy also need a fresh look in the changed circumstances, particularly when the perceptions of the domestic private

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India's stand at G-15

Prabhakar Mishra

THE FIRST SUMMIT OF the Group of 15 developing countries, popularly known as G-15 ended in Kuala Lumpur with a commitment to begin a process of regular consultations and cordination to increase cooperation and self-reliance in the context of an increasingly inter-dependent world The Heads of Government and special representatives of India, Malaysia, Algeria, Argentina, Brazil, Egypt, Indonesia, Jamaica, Mexico, Nigeria, Peru, Senegal, Venezuela, Yugoslavia and Zimbabwe attended the summit.

G-15 was launched in September last year at the concluding session of the non-aligned summit in Belgrade. At that time, India and some like-minded countries, after consultations amongst themselves felt the necessity of having a small group of selected developing countries to meet regularly and to engage in depth discussions on international economic issues and also to help promote South-South dialogue. The objective of G-15 is two-fold. One is to develop common perceptions an strategies on major issue, relating to world economic situation, and the other is to formulate and carry out concrete suchemes for South-South cooperation

Dialogue with North

The launching of G-15 has been seen as a counter to the Group of Seven industrialised countries of the North by some quarters. This misconception was demolished at the inauguaral function of G-15 at Kuala Lumpur by Malaysian Prime Minister Dr. Mahathir Mohammed. He emphatically declared that G-15 does not consider itself as self-appointed arbiter and regulator of global economic affairs It has no intention of indulging in any conspiracy against the North. He made it clear that the fifteen developing nations have come together to consult one another and to exchange views as well as to explore the potential which is largely untapped for South-South cooperation. He also said that the Group would like to foster dialogue with the North, the absence of which has caused the economic gap between the North and the South to widen further since the failure of the first North-South dialogue.

Before the opening of the conference, senior officials of the 15 developing countries met for two days to prepare the agenda for the summit. On behalf of India, the Foreign Secretary, Mr. Muchkund Dubey, participated at the meeting. Several projects submitted by member countries were also discussed to be placed before the summit for approval. India gave the proposal to set up a gene bank and for fabrication of low-cost solar powered refrigerators for rural communities.

The .summit approved in principle all the 13 projects placed before it giving green signal to the three projects which can be taken up immediately These include the setting up of a South Investment Trade and Technology Data Exchange Centre to promote and disseminate information on investment and trade opportunities in the South, payment arrangements among the countries to encourage trade exchanges and the setting up of a forum of business and investment to induce the private sector to take up economic cooperation.

The summit also decided that the member nations will closely consult one another and coordinate efforts to reach a balanced and successful conclusion of the Urüguay round of talks which should take into account the concerns and needs of the developing countries.

The conference has called for the launching of the second round of global system of Trade preferences (because it is considered a means for promoting trade and closer economic cooperation among the developing nations

Another important decision was to work out a common approach to the debt problem. For this, the permanent representative and the financial experts from the developing countries will meet and try to work out the position of the South. This is the first time, when a South position paper will be prepared Till now, almost all suggestions for getting over the debt problem have been worked out by the North along with individual perceptions of the indebted countries. The view of the summit is that those who can repay must do so. The focus will be on working out solutions for those countries which would go under in trying to repay their obligations.

From the Indian standpoint, the inclusion in the Joint communique of reaffirmation of faith in the multilateral trading system and concern at its erosion is very important. This has a reference to the Super

301 clause of the U.S. trade law. The emphasis by the conference on the maintenance of the open multilateral trading system has strengthened India's case in this regard.

Although India played a low-key role in the summit, the joint communique reflects India's position to a very great extent on a variety of issues. The statement, coordinating the positions of developing countries on the Uruguay Round can be cited as an instance in this regard. Until now it has not been possible to arrive at a coordinated view on the Uruguay round, either in the NAM or in the general agreement on Tariffs and Trade, GATT.

On the question of Intellectual Property Rights (IPR), India has been able to convince other participating member countries on the need to take into account the technological needs of the developing nations and the problem of access to them

On the whole, the institutionalisation of G-15 at Kuala Lumpur summit is also a feather in India's cap because it has been the prime mover of the idea and took effective part from the very beginning to give a concerete shape to this organisation of developing countries.

Shared perceptions

The deliberations at G-15 summit at Kuala Lumpur were free from ideological postures. The seven Latin American, five African and three Asian countries which constitute the G-15 have disparate political, social and economic systems. Yet they all resolved to work on the basis of shared perceptions. The Kuala Lumpur Meet has seen the determination of the developing countries to find new ways to deal with their economic problems in a cooperative and constructive manner.

The Prime Minister, Mr. Vishwanath Pratap Singh who headed the high powered Indian delegation to Kuala Lumpur also made his first official visit to Malaysia after assuming office. The importance India attaches to its relations with Malaysia can be seen from this. The visit came 22 years after the last official visit to malaysia by an Indian Prime Minister, Mrs Gandhi in 1968. During the official talks both countries decided to give a new impetus to trade and economic exchages to foster closer cooperation among countries of the South. Both countries agreed that bilateral trade should expand which can be balanced at higher levels. It may be mentioned here that India has an adverse balance of trade with Malaysia. Till now, India's export to Malaysia has been marginal and stands at less than two per cent of her entire exports.

To encourage greater trade, the Indian delegation proposed that the present Indo-Malaysian Joint trade committee should be upgraded to the level of a joint commission. At present, the committee meets at the Secretaries level. If the Indian proposal is approved by the Malaysian cabinet; the Joint Commission will meet at the ministerial level. It was also broadly agreed to encourage tourism between the two countries.

India has also offered to help in setting up the fourth faculty of medicine in Malaysia for which medical experts and teachers will be sent to Malaysia. India also assured Malaysia that the number of their students in Indian medical Colleges will not be allowed to decrease. In fact, their number will be increased. It was also agreed that there should be greater exchange of businessmen and politicians so that development models could be studied by each other. The Prime Minister, Mr. Vishwanath Pratap Singh's remark that instead of looking to the West we can learn from each other confirms the sincerity of India's purpose.

The visit of the Indian delegation to Malaysia also provided an opportunity to Mr. Singh as well as to the External Affairs Minister, Mr. I.K. Gujral to explain to several leaders of the G-15 Nations, Indian stand on Kashmir. They were told about Pakistan' active involvement in terrorism and secessionism. All the leaders appreciate India's stand and expressed the hope that the problem would be solved through peaceful negotiations under the Shimla agreement.

India and Malaysia have traditional links through religion and history. About 15 lakh, that is about 10 per cent of Malaysian population is of Indian origin, belonging to various religions. The visit of India's high-powered delegation was a big event for them. Eminent Indians met the Prime Minister and Mr. Gujral at a reception in Kuala Lumpur during the visit

Another significant event was the visit of the Prime Minister to the high-tech advanced taining centre in Selangor state, about 63 kilometres from Kuala Lumpur. This has been established by the public sector Hindustan Machine Tools The Rs. 19- crore the first of its kind in Malaysia will help upgrade skills in various trades of industrial workers

The Prime Minister during his visit to the centre remarked "It could be the beginning of a long and rich partnership between the two countries." This reflects India's earnest desire for a continuing friendly tie with Malaysia

(Courtesy : A.I.R)

Service Area Approach to rural lending

R.K. Jalan

There had been considerable progress in the flow of institutional credit to the rural areas during the last two decades, thanks to the various measures taken to streamline the lending operations of banks. The need for toning up the lending style of banks led to the adoption of Service Area Approach. The author examines the salient features of the scheme which, among other things, aims at optimising the end-use of credit by establishing better linkages with production and productivity and proper re-cycling of bank credit. Success of the schemes, he says, depends upon involvement of the rural masses in the planning process.

IN A COUNTRY OF OUR size with attendant problems such as a third of the population living in abject poverty, large section of the population being dependent upon agriculture for their subsistence, pressure on land due to adverse man-land ratio and in its wake, increase in the number of agricultural labourers and migration of rural labour, faster pace of rural development and diversification of rural occupation need no emphasis. Until Independence, the rural population had little or no access to institutional agencies for their credit needs With the dawn of freedom, the institutional credit system was geared up to play a greater role in transforming the conditions of rural life

The era after Independence witnessed large scale investment in the rural areas through the Five Year Plans, particularly in the agricultural sector With the reaping of the benefits of these investments, the demand for credit increased and the need for establishing a strong rural credit system became imperative Following the recommendations of the All India Rural Credit Survey Committee (1951), steps were initiated to consolidate and strengthen the already existing co-operative credit structure operating in the rural areas. RBI came forward with liberal assistance by way of concessional refinance to the co-operatives for ensuring adequate credit flow in the rural areas, particularly for agricultural operations. Finding that the co-operatives alone would be unable to meet the increasing credit demand and also with a view to making accessibility to institutional credit easier for the rural borrowers, the Imperial Bank of India was converted into a public sector bank and allowed to expand its branch net work in the rural areas The social control over commerical banks was followed by nationalisation of major commercial banks in 1969. The post nationalisation period witnessed a rapid development in the operations of commercial banks, particularly the public sector banks. As a first step, it was thought necessary to take banking facilities to the door steps of the rural folk. Consequently, large scale branch expansion was resorted to in the rural areas. As a result, the number of rural and semi-urban branches of commercial banks at 5154 in June 1969 forming 62 per cent of the total number of branches, increased to 43717 forming 76 per cent of the total number of branches in June 1989. Consequently, the population covered per branch declined from 65000 in 1969 to 12000 in 1989. Guidelines were also issued to the commercial banks with regard to the manner of lending in the rural areas. Certain categories of borrowers such as agriculture, cottage and small scale industries, rural artisans, small traders and businessmen, professionals and self employed etc., who contributed in a great measure to the national economy but were being neglected in the matter of credit, were given preferential treatment and classified as "priority sector". Banks were advised that their advances to this category should reach a level of at least 40 per cent of their total lending. Within the priority sector, certain segments were also identified for pointed attention. Accordingly, banks were required to ensure that their direct advances for agricultural purposes formed at least 15 per cent of their total lending which was raised to 18 per cent in

phases. Further, at least one fourth of their lending to the priority sector category should be channelised to weaker sections consisting of small and marginal farmers, agricultural labourers, tenants, Scheduled Castes and Scheduled Tribes and small borrowers in the category of cottage and small scale industries. The norms and procedures for lending to the rural borrowers were simplified and an element of concession in lending rates was also introduced to these borrowers.

Lead Bank Sescheme

Attempt was also made towards streamlining the lending operations of banks in the rural areas to ensure planned and orderly flow of credit for development. The Lead Bank Scheme implemented since 1970 sought to achieve this end and it now serves as an effective machinery for bringing about the required co-ordination between banks and the development agencies of the State Government.

The establishment of Regional Rural Banks in the year 1975 was yet another step taken to have specialised agencies focussing its attention exclusively towards the weaker sections of the community. There are at present 196 such banks established all over the country having a net work of about 14,000 branches. In order to support the massive role played by these institutional agencies in rural lending, the Agricultural Refinance Corporation was set up which was later converted as the National Bank for Agriculture and Rural Development in July 1982 and it took over certain refinance functions from the Reserve Bank also. With a view to encouraging banks to involve increasingly in rural lending, credit guarantee cover was also introduced for small loans and advances to the small scale industries sector.

The various steps enumerated above have brought about a quantum leap in the flow of institutional credit to the rural areas within the last two decades after the nationalisation of major commercial banks The total outstanding advances of the Public Sector Banks to the priority sector category of borrowers increased from Rs. 441 crores in June 1969 to Rs. 39418 crores in March 1990. In percentage terms it increased from 14.6 per cent of their aggregate credit to 43 2 per cent. As a cumulative result of the spread of banking network in the rural areas and the thrust given for institutionalising rural credit, the share of institutional credit in the total debt of cultivators increased from 4 per cent in 1951 to about 60 per cent in 1981. In order to reduce the incidence of rural poverty. Government also sponsored special employment oriented programmes in the rural and semi urban areas. Banks have played significant role in providing credit support for these programmes as well. Specialised agencies like the DRDAs and DICs have been working in close co-ordination with the banks in the successful implementation of these schemes. New dimensions were thus added to the lending operations of banks, particularly in view of the magnitude of credit deployed in the rural areas and for a variety of purposes.

Streamlined lending

In the context of substantial increase in the credit deployed in the rural areas by the banks, the Reserve Bank had made certain analysis of the flow of rural credit vis-a-vis impact on production and productivity. The analysis revealed that during the five years ended 1985-86, on an annual basis, the gross value added in agriculture registered a growth rate of 2.7 per cent as against 5.9 per cent and 7.4 per cent in the manufacturing. and tertiary sector respectively. The share of agriculture in the total net domestic product at factor cost (1970-71 prices) declined from 39.8 per cent in 1981-82 to 35.4 per cent in 1985-86. Production of foodgrains increased only marginally from 133 million tonnes to 155 million tonnes, with considerable regional disparities in output as well as growth. In contrast, the aggregate advance for agricultural purposes from the rural lending agencies viz., co-operatives, RRBs and commercial banks recorded 41 per cent rise from Rs. 11554 crores to Rs. 16235 crores between June 1984 and June 1986 It was therefore considered necessary to make an indepth study with regard to the reasons for the disproportionate increase in agricultural credit and the phenomenon of declining agricultural production and productivity. At the instance of the Reserve Bank, the Chairman of public sector banks carried out extensive studies in the rural areas in October 1987 The studies revealed several weaknesses in the rural lending activities of banks. It was found that no conscious efforts were made by banks to assess the level of increase in agricultural production, productivity and income as a result of flow of bank credit. Undue emphasis was given to achievement of quantitative targets Bank credit was often not supported by other essential inputs such as technology, water management, inputs such as seeds, fertilisers and infrastructure such as storage, processing, marketing etc As a result, credit could not achieve optimum results Schematic and intensive area development approach were on the decline and scattered lending was increasingly being resorted to. Subsidy linked and target oriented Government sponsored schemes tended to snap the relation between bank credit and productivity due to several deficiencies observed in their implementation. Deteriorating recovery climate had affected the ability of banks to recycle funds. The credit plans drawn up by the lead banks were often unrealistic and there was a mis-match between availability of credit and other inputs. RRBs and co-operatives had turned out to be weaker links in the rural credit delivery system. These findings suggested toning up the lending style of banks in the rural areas. The participants in a seminar organised by the Reserve Bank in January 1988 emphasized the need for adopting an area approach and concentrated lending for development of the area with the active support of the development agencies of the State Governments. The scheme of Service Area Approach

to rural lending was thus introduced in April 1988.

Under this scheme, all the 5½ lakh villages in the country have been allocated amongst about 42000 rural and semi-urban branches of commercial banks, each branch getting on an average, about 15 to 25 villages in its vicinity as its "service area". The co-operatives were not brought into the purview of this allocation exercise, since they already had earmarked area operation under their bye-laws. They were, therefore, allowed to continue their lending operation alongside the commercial banks and the RRBs, and will otherwise participate in the implementation of the scheme in the same manner as commercial banks. In certain States where the branch net work is poor and also in hilly and tribal regions, some branches have got larger number of village as their service area. Such branches formed about 14 per cent of the total number of branches covered under the scheme. The problem in such cases is mostly one of villages scattered over an extensive area and inaccessibility. About 1400 centres have been identified in the whole country for opening of new branches in areas where branches have got large allocation, so as to give them a manageable service area.

Integrated development

Under the scheme, it is envisaged that the rural branch managers would pay concentrated attention for brining about an integrated development of the service area allocated to them, by identifying the potential for lending and giving appropriate credit support for schemes suited to the area. The developmental agencies of the State Governments would extend the required co-operation in providing the non-credit inputs. Activities of the bank branches as also the development departments of the State Governments would be monitored in a new forum established in each block besides the existing district level forum. The brach managers have prepared profiles for each of the villages allocated to them for assessing the potential for lending in the service area, the skills available with the population and the schemes suited to the area. On the basis of such data gathered, credit plans have to be prepared annually for each village which would be aggregated into branch, block and district credit plans. The emphasis of the new scheme is on grass root level planning and monitoring the development within a compact area. The scheme has several distinct advantages. First, it seeks to rectify the lack of thrust noticed in credit dispensation in the rural areas despite the existence of a multi-agency system. Secondly, duplication of efforts observed in the multi-agency approach has been avoided. Thirdly, scattered lending over wide areas and consequent dilution in standards of post-disbursement supervision of credit would give way to organised and planned lending. Fourthly, the compact area assigned to each branch would enable effective monitoring of the end-use of credit and make it easier to assess its impact on the increase in the levels of production, productivity and income in the rural areas. Finally, it also gives pride and motivation to the branch manager in drawing up and executing his own credit plan. In short, the new scheme is aimed at bringing about an improvement in the quality of lending, optimising the end-use of credit by establishing better linkages with production and productivity and proper recycling of bank credit

Co-ordination

Credit is only one of the inputs for rural development and has to be necessarily supported by other equally important non-credit inputs such as technology, water management, fertiliser, seeds, marketing and extension. The Government departments which have responsibilities of ensuring the supply of these inputs will have to coalesce with the bank branches at the appropriate time to ensure that credit becomes productive. The State Governments have assured the banks that their support would be available at the relevant times. What is perhaps needed is constant inter-action between the bankers and the State Government departments for providing the non-credit support at the relevant time, through the appropriate fora established for such co-ordination. It is also necessary that the banks have to be integrated with the development plans of the State Governments This requires decentralisation of the planning process at the Government level also.

The success of the new scheme largely depends upon the attitude exhibited by those entrusted with the responsibility of implementing it. Guidelines already exist for uniformity in the procedures for lending and terms and conditions of the credit. The higher level officials as also the officers of Reserve Bank visit the branches and verify whether these guidelines are observed. Apart from these measures, much depends on the branch managers who should constantly be in touch with the villagers in their service area. Branch managers have also been given appropriate training, to equip them with the required degree of expertise in performing the complex task of preparation of annual credit plans for the branch.

Smooth change-over

Steps have also been taken to ensure a smooth change-over the new scheme so that credit flow to the rural areas does not get disrupted in the transition stages. Borrowers who are unable to switch over the branch to which their village has been allocated for certain genuine reasons, are allowed to obtain their credit requirements from the same branch with they had dealings. It should however be the endeavour of banks to ensure that gradually their lendings align with the service area allocated to them. The RRBs as also the co-operatives in some states are found to be weak links in the rural credit delivery system. Appropriate steps are therefore, called for to revitalise and make them play an effective role and supplementing the efforts of commercial banks in

(Contd. on page 22)

Customer services and banks

Dr Nageswar Rao and Pramod Pathak

The rapid expansion of the banking net-work in the changing scenario has put great pressure on routine work with increasing number of customers opening accounts in banks. As a result, the authors contend, the relationship between the banker and the customer which was expected to improve, has suffered. In this study, while indicating the dark spots, the authors have made some interesting suggestions.

INDEPENDENCE BROUGHT TO the fore the economic realities facing the country. Soon, the banking system was identified as a potent tool to respond to the needs of the country. In July 1969, fourteen major commercial banks, each having a deposit liability of Rs. 50 crores and above were nationalised. Eleven years later, i.e. in April 1980, 6 more banks with deposit liabilities of not less than Rs. 200 crores were nationalised. Consequently, a substantial segment of banking industry has come under public ownership. Various steps like massive branch expansion programmes and stipulations in regard to the priority sector lending were stipulations in regard to the priority sector lendings were initiated in the wake of tuning the bank services to the demand of times. The banks in India systematically moved towards mass banking from class banking. The mounting pressure of routine work in the wake of large increase in the number of small customers entering the bank's books, necessitated a review of the existing organisational resources of banks. In this backdrop, the paper endeavours to probe this problem with an objective to suggest concrete suggestions for improvement in customer service. Experiences of bank offices and customers in Varanasi have been taken into account in making general statements and inferences.

Problem area

While analysing the problem of deteriorating customer services, it is essential to identify the kind of customers which the banks have to serve. Out of the two categories of customers, the depositors and the borrowers, the expectations of the depositor are more significant as he does not stand to gain from the bank as a borrower does, except in the form of quick and courteous counter service. The challenge before the banking industry in India today is to generate a high degree of customer satisfaction to this category of customers who consume more than eighty per cent of the operational time of the banks.

In January 1988, the findings of a National Survey on Public Sector Banks carried out by the Operations Research Group (ORG) covering 21,100 account holders from 35 Urban locations in the country were made available. Their findings were as follows:

(i) Half of the urban coustomers do not discern any recent improvement in their services.

(ii) Two thirds of account holders are generally satisfied with the services provided by banks.

(iii) One ninth of account holders consider the improvement in services on account of nationalisation of banks.

(iv) Staff attitude, slow service and unfavourable procedures and terms were among the more frequently mentioned complaints against banks.

The common bank customer has not been particularly satisfied. He has neither been made aware of his rights as a customer nor has he been treated respectfully. The image of the bank employees as a highly paid lot indifferent to their responsibility towards the customer, whether based on facts or fiction, is readily accepted by the dissatisfied customer. The question here is not of justifying one side or the other but of attempting to understand the phenomenon. Incidently, there are other service organisations with better paid employees and poorer customer service but the expression of customer dissatisfaction may be less pronounced. The bank's response to such a situation is generally defensive.

Customer service

The Government of India had appointed a working group on customer service under the chairmanship of Shri R.K. Talwar which made about [illegible] recommendations for improvement of customer

service. The Reserve Bank of India (RBI) advised the banks to implement almost all the recommendations. Let us examine the implementation of those recommendations in a few areas critically:

(a) For customer education, the banks displayed suitable notices specifying norms at bank branches for rendering routine services like updating of pass books, withdrawals, deposits, preparation of drafts etc. We rarely find the implementation of these norms by the banks. Man at the counter and the manager of the branch put forth a good number of arguments to support the delays.

(b) Regarding immediate credit to outstation cheques for value not exceeding Rs. 2500, banks do not bother to implement it. The payment of interest at savings bank rate for delay in collection of instruments beyond 14 days is being made only when a bank customer draws attention to lapses. Regarding these cheques, commission is being shared by both the banks on 50-50 basis. In a good number of instances, banks debit commission by using their own judgement. There are cases when both the banks have debited commission on 100 per cent basis. customer, being ignorant of these calculations and discretionary powers, has to bear the increased burden of commission costs

(c) Banks have formed special teams of senior officers to visit selected branches to make spot assessment of the state of customer service Efforts are being made to provide guidance to the staff at brach levels It has been the experience of the branches that these visits have now become the routine matters without any concrete results.

(d) Many banks have conducted customer meets in several of their branches. Apart from these meets, fifteenth of every month (if that happens to be holiday, the next working day) is being observed by the banks as customers day Customers are invited, the problems posed are analysed and actions are being taken. As the response of the invitee customers is not good, organising such formal meets do not bring any tangible results.

(e) There are numerous complaints regarding delay and other procedural difficulties in the settlement of the deceased customers accounts R.B I advised the banks to pay the balances in the accounts of deceased customers upto Rs. 25,000 to their successors/Survivers without insisting on succession certificates' and on the basis of indemnity/guarantee The branch manager has a feeling that he should not excercise discretion in this regard.

(f) Regarding training, the R B I advised the banks to include one or two sessions on customer service in their training programmes. Banks are implementing the suggestion by including such sessions in their training programmes. The results are not encouraging as the counter people are not at all being sent for such intensive training on the pretext that they cannot be spared.

(g) The teller system was extended in a sizable number of new branches. More than five hundred teller counters were opened by the SBI during the year 1988. These teller counters provide quick and immediate service for withdrawls of deposited accounts Recently, it has been pointed out by customers that counters are not working efficiently

Suggestions

The problem of poor customer service is to be dealt with from various angles, with a firm belief that there is no escape from this responsibility towards the customer A few suggestions for improving customer service are:

(i) Some reorientation has to be brought in the attitude of the bankmen by training, education, incentives and deterrants. The National West Minister Bank, New York, USA wanted to demonstrate that services performed and delivered by human beings can be predictable and reliable. They launched a series of innovative T.V Commercials called 'Raising the Standard of Livings'. One promised that if a customer was not pleased by the way he or she was greeted, the bank would pay the former US $ 5 on the spot

(ii) In order to inculcate a sense of belonging amongst the counter employees, quality circles should be constituted so that work related problems be discussed at lower level rather than imposing the decisions from the top. The Bhopal circle of the State Bank of India has experimented with the concept For necessary impact and enduring results, all levels of employees must get into the act For instance, a Quality Circle could be formed in the regional office of a bank to examine the delays in making entries in the passbook, preparation of draft etc The members could be drawn from supervisors and other employees working in that office

(iii) Technology has brought far reaching changes. Automatic Teller Machines are available, 24 hours in a day The buzz words of customer service for tomorrow would be—"Any Time and No Lag Time." A change in the system will not only bring about a changed customer attitude but will also ease the pressure at the counter during banking hours.

(iv) There is a need to introduce the system of customers feedback. Why take action only

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Recovery problem of bank advances

Dr. D.K. Kulshrestha

Recovery of bank advances is becoming a complex issue. A new dimension has been added with the emergence of the priority sector advances. The author analyses the issues involved and pleads for replacing the target-based credit-policy by a need-based one.

SO FAR AS THE RECOVERY of bank advances is concerned, often the error of judgement plays a significant role. Consequently, no banker, howsoever experienced and shrewd he may be, howsoever careful and diligent in granting or sanctioning advances, succeeds in getting back all the money that he has advanced Therefore, the banks have to provide a certain percentage of their advance as 'bad and doubtful debts' in their balance sheets With the outcome of the social responsibilities of the commercial banks and the advances to the priority sector, the situation has been becoming more and more complex. Thus, the most serious problem that affects the entire banking industry in India is the problem of recovery of bank advances Deep concern is being expressed over the heavy overdues over the priority sector advances and sometimes it is being suggested that legal provisions should be recast to introduce deterrent penal action against the wilful defaulters.

The problem of recovery of advances in the country has assumed a new shape and dimension. Whenever the recovery prospects are discussed, people speak about three C'S, i.e. character, capacity and capital. But this idea as the basis of advances had become totally old and obsolete. The philosophy of social objectives of banks and that of their nationalisation, the task of economic development of the common man and giving a boost to the weaker sections of the economy, set for the bankers have totally thrown out the concept of 3C's (Character, capacity and capital). Thus, banking is in a dilemma Today the first as well as the ultimate object of every banker is commercial based i.e 'Growth with Profits.' The banker is even today putting on the commercial objectives but has bartered a part of its profits for the socio-economic development of the common man Though there are certain organisations like Credit Guarantee Corporation of India and Credit Guarantee Organisation which guarantee these advances, but these organisations have their own limitations and in general the experience of the bankers in getting back the guaranted claims settled is not even an easy task

The bank advances, as are being guaranted today in line with the policy of the Government of India and the Reserve Bank of India can be broadly classified into two categories, viz -

(i) Commercial Advances, and
(2) Priority Sector Advances

Commerical advances

This category of bank advances includes all sorts of advances given to the individual as well as to the corporate sector In regard to these advances, the banker applies all the tools at his disposal like funds flow analysis, Balance Sheet analysis and the working capital analysis The possibilities of these advances becoming sticky are not at all common as the banker takes all sorts of precautions before granting and sanctioning such advances It is only the political interference, interests of the Board of Directors of the bank concerned and other extraneous considerations or privileges to the borrowers, which may affect the rigour of the analysis and may put the banker in the adverse situation

The main reason for failure in the recovery of the commercial advances is mismanagement. Financial mis-management may be in the form of interlocking of funds among sister concerns, diversion of funds and lack of proper management of inventory. Over-accumulation of inventory or production bottlenecks or labour strikes or lockouts or market imperfections may be regarded as the firstsigns of stickness in this regard. Under such circumstances a shrewd banker should become alert and should not immediately take steps to recall the advances or to block the account and thus, should not contribute to the process of digeneration which has already started. The banker should first try to study the problem of the borrower as well as the concerned industry and find out ways and means of overcoming the same. In this connection, the bankers can make use of the services of the management experts to identify the problem arrive at some appropriate solution and apply the

necessary remedial measures and thus, can save the industry from its disaster. While rehabilitating, it can impose some strict conditions e.g. bank's participation in its management by deputing an authorised representative as a director on the Board of its Management. Restricitions like ceiling on declaration of dividends, expansion of capital, etc. may also be purposeful in this regard.

In this connection it is also suggested that the banker should ensure that the statement of accounts of the borrower company is periodically received and an intelligent interpretation of the data is made to assess assets and liabilities and also to assess the solvency and liquidity of the comp~ny. Moreover, efforts should also be made to improve the security. The monitoring of the credit should be done by pruning down or by enhancing the bases upon production programmes.

Priority sector advances

Whenever the concern is expressed over the poor recovery performance of the commercial bank advances, it is related to the priority sector advances. Such concern is related only to advances to agriculture— and more particularly to shorter term advances for agriculture. There are other areas in priority sector where equal or more concern is necessary, but not so concretely expressed. These priority sectors are .

Small Scale Industries,
Retail trade and Small Business,
Transport operators,
Professionals and self-employed, and
Education.

By March 1985, 40 per cent of the total advances of the commercial banks should have been for the priority sector with as sub-goal of 40 per cent for agriculture of which again atleast 50 per cent should have been given for the small and marginal farmers and agricultural labourers, twelve and a half per cent of the Small Scale Industries advances for the rural and cottage industries, etc.

Recovery position

During the ancient India, sons were accepting the moral responsibility to repay all debts taken by their forefathers, but the situation has become quite different today. Nearly 50 per cent of the advances given by the commercial banks, regional rural banks and cooperative banks are not repaid. The table given below shows a clear picture of the performance of the public sector banks in recovery of their direct agricultural advances.

Though the percentage of recovery to demand is above 50 per cent and the position seems to have been slightly improved during the latter eighties, the position cannot be regarded as satisfactory. While the banks can recover some proportion of their bad debts from the Deposit Insurance Credit Guarantee Corporation of India (DICGC), the balance is to be written off: Besides, the premium is also to be paid for availing the facility of insurance from DICGC. Therefore, some efforts have to be sought to improve the recovery position of the commercial banks

Table 1

Recovery Position of Agricultural Advances by Public Sector Banks

Year	% of Recovery to Demand
1982	52.2
1983	53.2
1984	51.6
1985	54.2
1986	56.5
1987	55.3
1988-89	54.4

The problem of recovery of loans specially in rural sector is affected by both the demand as well as the supply sides, which have been conveniently discussed as under :

Demand side problem

There are so many inter-linked factors because of which the rural borrowers fail to repay the loans taken by them. They are unable to use the loans, so taken, for productive purposes because of the lack of technical know-how, organisational incompetence and their ignorance. Besides, the amount of loans they are sanctioned, is not enough to fulfill the requirements of their productive endeavours. The lack of proper infrastructure is also an important reason in this regard. Increase in the costs of inputs, presence of old debts, social responsibilities, etc. are some other reasons, which affect the recovery capacity of the rural borrowers.

Thus, there are cases where the defaulter borrowers have the will to repay the loans, but cannot repay because of the factors beyond their control. On the other hand, there are the defaulters, who have the ability to repay, but they do not pay. There should be some strict statutory action against such wilful defaulters.

Supply side problem

Proper assessment of demand for loan and timely disbursement of advances are also essential to keep the recovery position maintained. In India, the entire development programmes are target-oriented. In order to achieve tragets, commercial banks go on granting loans and advances totally ignoring proper selection of the borrowers. It deteriorates the quality of rural lending. In fact, lending should be need based rather than target based.

The Committee on Agricultural Lending by Commercial Banks tried to find out the reasons for poor recovery of loans in our rural segments Its findings are as under:

Table 2

Reasons for Poor Recovery of Rural Loans

		Percent-age	Percent-age
(a)	**Supply Side Factors:**		
	(i) Lack of effective **Supervision and follow up**	12	
	(ii) Defective Appraisal	2	
	(iii) Improper selection of borrowers	2	
	Total		16
(b)	**Demand Side Factors:**		
	(i) Borrowers' behaviour	53	
	(ii) Mis-utilisation of Loans	4	
	(iii) Diversion of funds	8	
	(iv) Insufficient incremental Income	8	
	(v) Absence of relief measures; etc	11	
	Total		84
	Grand Total		100

The above table makes it clear that the recovery of bank loans and advances is affected by both the demand and supply side factors. The solution to the problem also rests in these two ways On one side, it is very essential for the lender to ensure, if the borrower is a genuine person and his requirements are also genuine. On the other hand, the borrowers are supposed to use the loans and advances properly and for the purpose, they have been granted For this purpose, they are supposed to be given adequate guidance and technical expertise to make their projects a success In order to improve the recovery position, specially in our rural segments, the following suggestions are made:

(1) To ensure adequate and timely recovery of loans and advances, it is necessary to have post-lending supervision and control on the borrowers. The lender should ensure that the loans and advances are being utilised effectively and for the purpose, they have been given. The staff should be well trained to guide and help the borrowers adequately

(2) The amount of loan granted to any borrower, should be adequate in view of his requirements, otherwise recovery would be affected adversely as the borrower would not be able to finish up his project and remain busy in getting the additional funds from some other sources.

(3) The loans sanctioned should be disbursed well in time and be given direct to the borrowers. It will also ensure the recovery in time

(4) The repayment schedule should be [...] prepared that it may coincide with the tin[...] when the borrower will find it convenient [...] repay the loan, i e. at the time when he w[...] have income from one source or the othe[...] e g farm loans should be asked to be repa[...] when the farmers sell their crops.

(5) The commercial banks should emphasise t[...] borrowers to repay the loans regularly ar[...] for this they should be given some ext[...] incentives.

(6) In case of default in repayment, the nature [...] default and the circumstances under whic[...] the default has been made should also b[...] studied If the circumstances are genuin[...] and beyond the control of the borrower, th[...] repayment schedule should be modified.

(7) It is also necessary that the loans officers [...] the commercial banks should understand th[...] attitude and psychology of the borrowers an[...] only the genuine borrowers should b[...] welcome

(8) The lenders should also build up a bett[...] rapport with the rural borrowers and mak[...] them understand that the loan should b[...] used for productive purposes and not f[...] consumption.

(9) Ultimately, the Government should als[...] adopt an encouraging attitude to ensu[...] better recovery performance. It shoul[...] provide necessary infrastructure, technic[...] knowhow and other services to enable th[...] borrowers to make more effective use [...] loans. It also requires coordination amo[...] different credit agencies and also to impro[...] their position to enable them to give sufficie[...] credit as per the requirements. The targ[...] based credit policy be replaced by the nee[...] based one so that only the needy class [...] people may get credit.

Thus, both the lenders and borrowers are responsib[...] for the poor recovery performance in the count[...] The need is for sincere efforts from both the sides.

The author belongs to Department of Commerc[...] Hindu College, Moradab[...]

To our readers

With effect from 1st September 1990, t[...] price of single copy of YOJANA will be Rs. [...] Consequently, the revised subscription rat[...] for 1 year, 2 years and 3 years will be Rs. [...] Rs. 108 and Rs. 144 respectively, against t[...] current rates of Rs. 40, Rs. 72 and Rs. 96. T[...] present subscribers will continue on t[...] existing rates till the expiry of their subscripti[...] period.

Commercial banks in Kerala: an overview

Babu Joseph

Here is an overview of the evolution of banking system in Kerala over the years. Spread-over of banks in the interior parts, a good infrastructure and inflow of Gulf money and other foreign remittances are some of the high points of development of banking in the State which, according to the author, was much ahead of other States even in 1930s. The commercial banks in the State, he says, offer necessary financial assistance to various rural development programmes and priority sectors like agriculture, small scale industries, etc.

FOR CENTURIES KERALA was well known for its trade with European countries due to its predominance in the production of tea, spices etc. In the development of Commercial banking system also, Kerala was much ahead of other States, as early as in the 1930s. The importance of cash plantation and cash crops in the cropping pattern made banking business less risky and the farmers had no problem in procuring credit.

The State had a good banking setup compared to many other States even before nationalisation. A noteworthy feature of banking development in the State is that banks are not concentrated only in cities and towns but are generally spread over the interior parts of the State.

The Kerala financial scenario was, till recently, characterised by some other features also viz., operation of non-banking financial institutions (known as Blade Companies) on a large scale and inflow of foreign remittances The total number of migrants from Kerala to the Gulf and other foreign countries as on 1987 was 3,29,656 Out of the total 6.82 lakh migrants from Kerala, 48 per cent are foreign migrants Gulf migrants constitutes over 91 per cent of the foreign migrants. The banks were successful in mobilising the foreign remittances from these non-resident Indians The total NRI deposits increased from Rs 844 crores in 1985 to Rs. 1584 crores in March 1989. But the end of the gulf boom resulted in the fall in the income of the gulf emigrants leading to a declining growth rate in NRE deposits.

Table 1

Growth of NRE Deposits in Kerala

(Rs. in crores)

Year	*Total Deposits*	*NRE Deposits*	*% Growth of NRE Deposits (base previous year)*
1985	3479	844	
1986	4189	1156	37 00
1987	4816	1359	17 60
1988	5501	1562	14 90
1989	5667	1584	1 40
(upto March)			

Source Canara Bank Banking development from 1969 to 1989, Thiruvananthapuram 1990

Branch expansion

As already mentioned the State had a good banking infrastructure even before the nationalisation of major commercial banks in 1969. The total number of bank branches in the State increased from 516 in 1969 to 2801 as on March 1989, showing more than five-fold increase. During this period, the total number of bank branches in the country increased from 8832 to 56960 showing 544 per cent increase. The percentage share of rural and semi-urban branches in Kerala increased from 75 in 1969 to 84.15 in 1989. Thanks to the branch expansion policy of commercial banks in the state, the average population served by a bank branch came down from 41000 in 1969 to 9000 in March 1989 The corresponding figures at the national level are 69000 and 13800 respectively

Deposit mobilisation

The deposits mobilised by banks in the State stood at Rs 153 crores in 1969 and Rs. 5667 crores in March

1989. The share of Kerala in the total bank deposits in the country as a whole is 3.9 per cent.The average per capita deposits increased from Rs. 71 in 1969 to Rs. 2222 in 1989. The average deposits mobilised by a bank brach in Kerala increased from Rs. 29 65 lakhs in 1969 to Rs. 202.30 lakhs in March 1989 indicating a 582 per cent growth rate. But at the national level it showed a growth rate of only 336 per cent It is interesting to note that a substantial percentage of this deposits is mobilised from the 2314 rural and semi-urban branches.

Credit deployment

The total credit deployed by commercial banks in the State increased from Rs. 105 crores in 1969 to Rs. 3701 crores in March 1989. It shows a 35 fold increase during the 20-year period. The share of RRBs in the total advances in the State comes to Rs. 149 crores as on March 1989. The share of Kerala in the total credit deployed in the country is 3.85 per cent The credit-deposit ratio is 66 per cent which is on par with the national level. The per capita advances increased from Rs. 50.50 in 1969 to Rs. 1451 in 1989 The per branch advances increased from Rs. 20.35 lakhs to Rs 132.10 lakhs during this period showing 549 per cent rate of increase. The percentage increase at the national level was only 296 during this period

The commercial banks functioning in the State offered necessary financial assistance to different rural development programmes and priority sectors like agriculture, small scale industries, small traders, business enterprises etc.

The weaker sections got total financial assistance of Rs. 622 crores at the end of March 1989 through 18 4 lakh accounts This comes to 16 8 per cent of the net credit. The total financial assistance extended by banks to 2.6 lakh SC/ST families amounts to Rs. 64 crores as on March 1989.

Loans are also provided to the poorest among the poor through Differential Rate of Interest (DRI) Scheme. The total assistance was Rs. 36.62 crores as on March 1989. 3.2 lakh people were benefited. This figure works out to 1% of total bank credit which is in tune with the all India stipulation.

The total commercial bank assistance under the 20 point programme comes to Rs 367 crores covering 11 lakh beneficiaries.

Commercial banks functioning in Kerala had also lent a helping hand to the minority communities comprising more than 42 per cent of the total population Assistance to this amounted to Rs 464 6 crores covering 10 lakh beneficiaries as on March 1989.

The total advances under IRDP as on March 1989 was Rs. 89.4 crores benefiting more than 1 lakh beneficiaries. During the year 1988-89, 87006 beneficiaries received bank finance under IRDP.

The number of beneficiaries who received financial assistance in 1988-89 under the Self Employment Programme for Educated Unemployed Youth (SEEUY) was 14846. With this,the total number of beneficiaries who received finanical assistance went up to 81613 since the inception of the scheme in 1983. The number of beneficiaries who received financial support under the Self Employment Programme for Urban Poor (SEPUP) was 10592 during 1988-89 With this,the total number of beneficiaries who received assistance under this scheme comes to 31968 since its inception.

Service Area Approacl

The Service Area Approach (SAA) scheme is basec on the Ojha Committee Report (1988). The novel ide behind the scheme was implemented through out the country from 1st April 1989. It wa aimed at providing all villages in the country with th required dose of bank credit. Under this scheme specific areas are identified and allocated to rura and semi-urban branches of Commercial bank including Regional Rural Banks. But in Kerala insteac of villages, Panchayat Wards are allocated to the banl branches. This is because the total number of the villages in the State are only 1447. If these villages ar allocated to the rural and semi-urban branches o commercial banks each branch would have only les than one village.

Under SAA, 10092 Panchayat Wards are allotte among the 2349 rural and semi-urban bank branche in Kerala as on March, 1989. 94 per cent of th branches which implemented SAA have alread completed ward surveys and 82 per cent of thes branches also prepared their branch credit plans.

Table 2 and 3 bring out the salient features development of banking in Kerala and at the nation level during 1969-1989.

Table 2

Major indicators of Banking Growth in Kerala and Indi (1969-1989)

	1969		1989 (March	
Indicators	*Kerala*	*India*	*Kerala*	*Ind*
Total No of Branches	516	8832	2801	589
Total deposits (Rs in crores)	153	5148	5667	1448
Total advances (Rs in crores)	105	3717	3701	960
Population per branch	41000	69000	9000	138
Deposits per branch (Rs in lakhs)	29 65	58 30	202.30	254.
Advances per branch (Rs in lakhs)	20 35	42 60	132.10	168
Per capita deposits (Rs in lakhs)	73 40	95 80	2222	1[illegible]
Per capita Advances (Rs in lakhs)	50 50	64 20	1451	1[illegible]

Source Canara Bank, Profile of Kerala, Banking development fr 1969-1989 Thiruvananthapuram, 1990.

Table 3

No.	Item		Target	Achievement
1	Total No of Branches (December, 1989) Rural – 756, Semi-Urban – 1617, Urban – 447	–	2820	
2	Total Deposits (December, 1989)	–	6118 74 crs.	
3.	Total Advances (December, 1989)	–	3786 80 crs	
4	Share of priority sector advances in total advances (%)	–	40	45
5	Share of weaker sectors in priority sector advances (%)		25	37 24
6.	Share of direct agriculturalan advances in total advances (%)	–	17	17 18
7	Share of weaker sectors in total advances (%)	–	10	16 8

Source: Canara Bank Circle Office, Thiruvananthapuram

There is no gainsaying the fact that during the last two decades after nationalisation,commercial banks played an active role in the development' of Kerala. Six public sector banks share the lead responsibility of all the 14 districts in the state. The Canara Bank functions as Convenor of the State Level Bankers Committee with lead responsibility of five districts followed by state Bank of Travancore three, Union Bank of India and Syndicate Bank two each and Indian Bank and Indian Overseas Bank one each.

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entrepreneurs have widened a great deal to undertake giant and even very sophisticated projects which can attract sufficient funds from the capital market, and the resoruce constraint is getting accentuated for the public sector. These include the operations of the larger industrial units, MRTP/FERA companies, industrial sickness, and so on. The May 31st announcement, along with the relaxations effected in the policies relating to production of steel through the spong iron route and sugar manufacture are welcome developments, auguring well for further rationalisation of the Industrial and Investment Policy.

Courtesy: A.I.R.

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bringing about rural development. The co-operatives are not so far attuned to the system of credit planning. Efforts are being made to make them adopt the system of credit planning, on the lines of commercial banks.

The Service Area Approach has been accepted as ideally suited to improve the quality of lending in the rural areas The working of the scheme is being studied and improvements could be made in the light of the experience gained. The borrowers should be made aware of the need for building up a healthy rural credit system. Voluntary organisations and the State Government extension departments have significant role to play in this regard. Success of the scheme largely depends upon the involvement of the rural population in the planning process as also in deriving optimal benefits out of the efforts made by the credit agencies in improving their lot.

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when there is a complaint? For instance, the Lloyds Bank in U.K. sends questionaires every month to about 550 customers, at each of the 60 branches. This enables the bank to measure the quantum of customer satisfaction.

(v) The Walker Study has found that customers are five times more likely to leave because of perceived service problems than for price concerns. In a busy metropolitan centre like Bombay or Delhi, the speed and accuracy with which a service is performed and delivered, may perhaps be the key factor. For this, there is a need to reallocate the duties and responsibilities of counter people. By paying special allowances to them, the procedure of issuance of drafts, issuance of cheque books etc. can be speeded up.

(vi) Bank employees receive honoraria and increments in salary for passing various examinations. Incentives in the sphere of customer service should be introduced. The time is thus opportune for a beginning to be made in this direction.

It has been observed that more than eighty per cent of the time of the bank is devoted to routine activities i.e. deposits and withdrawals. There is a need to explore the possibilities of privatising this activity in order to improve the quality of customer service. Banks have already made a beginning in this direction by appointing collection agents on commission basis. Efforts made by the bank in this regard are not much successful so far. Reorientation of the entire scheme is the need of the hour and it would be a right step in improving the quality of customer service.

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Evaluation of cooperative credit system

Dr. R. Sidda Goud

Every productive activity needs finance. There is no exception for agriculture. The importance needs no stress as agriculture is the predominant sector in the Indian Economy. the finance required is of three types: short term, medium-term and long-term. These are met through loans borrowed from money lenders, cooperative credit societies, Government, Commission agents, traders, and friends and relatives.

This paper is confined to a taluka level, named Domakonda in Nizamabad District of Andhra Pradesh. The study deals with the short-term and long-term loans drawn from the primary Agricultural Co-operative Societies (PACS).

Aim of the study

The aim of the study is to understand the working of primary agricultural credit Societies (PACS) and other related problem's. The following objectives are examined in this study.

(1) Growth and development of PACS in Domakonda.
(2) Lending procedure of the PACS
(3) Distribution of credit by farm-size and Castebasis
(4) Problems of credit, repayment and outstanding dues
(5) Examining the statutory quota of credit to weaker sections.

To examine these time-series data from 1974-75 to 1984-85 were collected from village PACS records, group discussions, interviews with officials and non-officials and members of the societies

Data for period after 1985 was not available due to the merger of short term and medium term loans in long term loans in the form of "Single-window" system in Andhra Pradesh.

The study area, Domakonda Taluka in Nizamabad district, covers an area of 682 Sq. Km Spread over 67 revenue villages and 58 gram panchayats. The population of the taluka as per 1981 census is 1,29,908. The total cultivated area is 55,000 acres, of which 30 per cent is irrigated.

PACS

The PACS at village level constitute the base. These are the foundations on which the cooperative edifice is built. Each covers a small area, generally one village. PACS are responsible for providing short-term and medium-term credit, supply of agricultural inputs and marketing of the produce Other functions include: mobilitising local savings, distribution of loans, supervision of funds and their utilisation, and timely recovery of the loans

Co-operative finance is the cheapest and the best source of rural credit. The rate of interest is quite low The number of State and Central cooperative banks in 1984 ws 28 and 349 respectively The number of PACS in the same year was 95,000 with a total membership of 6.66 crores The PACS cover over 86 per cent of the villages and account for 46 per cent of the rural population

Co-operatives and rural poor

Despite considerable progress made by cooperatives to bring the weaker sections under their coverage, agricultural labourers and rural artisans have continued to be around 3-5 per cent. According to the Andhra Pradesh Cooperative Societies Act 1964 and the rules, PACS have to allocate atleast 75 per cent of heir total credit to the weaker sections. Out of this, 15 per cent of the funds is allocated to Scheduled Castes and 3 per cent to Scheduled Tribes.

Table-I reveals the progress of Co-operative societies in Domakonda taluka upto 1985. The most important aspect of the progress is the loan advancement to the farmers, both short and medium term. The amount of dues with the farmers was 43.60 per cent in 1974-75 It came down to 20.19 per cent and further to 1 78 per cent

The table indicates that the amount of loan advanced increased very rapidly in the post-Green Revolution period The table also shows that, the PACS in the taluka are making profit

Lending procedure

There has been an opinion that lending procedure is rigid and very lengthy. In our study, it was found that the lending procedure was simple and farmers have to submit only two documents. Broadly, there are 3 stages involved in credit lending, namely, fixation of scale of finances, preparation and scrutinity of nominal credit limit statements (NCLS) and sanction of credit limits, drawal and disbursement.

To study the objectives of credit distribution farm-wise and caste basis, as aforesaid, 20 per cent of the PACS are selected randomly. Based on this, three villages namely, Rameshwarpally, Thrippapur, and Janganpally were selected

The figures in Table-2, reveal that on an average the share of small and marginal farmers loan in the total was 65.60 per cent from 1980-1985 The percentage share of medium farmers, who possess less than 10 acres of land was 28.08 and the larger farmers 6.44. As per the available figures in the year 1980-81, a sum of Rs. 7,30,527 was disbursed to forward caste (FC) farmers and this amount has increased to Rs 19,15,902 i e 49 per cent The remaining 51 per cent of loan has been shared between Backward Castes (BCs), Scheduled Castes (SCs) and Scheduled Tribes (STs) The amount of dues in this year was Rs. 3,31, 143 (22.62 per cent) to the total loan distributed, in which the share of dues of FCs was 47.73 per cent, BCs, 37 46 per cent, SCs 13.09 percent; STs 1.72 per cent to the total dues respectively.

The study for a period of 5 years shows that the share of forward caste farmers in the total loan was 50 per cent on an average from 1981 to 1985, and the remaining 50 per cent of loan was distributed among the weaker sections which include BCs, SCs, and STs. On the other hand the dues to the societies for the same period shows that the percentage of forward caste farmers due to total dues to the PACS was 41 on an average, Backward Class farmers dues was 41.29, Scheduled Caste Farmer's 20.94 and STs., 0.89.

Overdue problem

The farmers have given different opinion for their inability to repay the loans in time. Broadly the reasons registered in the study are failure of irrigation wells due to the fluctiation of power supply, failures of crops, old debts, natural calamity, heavy non-farm expenditure, increase of prices of farm inputs, failure of electricity, increase of wages etc

Table 1

Progress of PACS in Domakonda Taluq from 1974-75 to 1984-85

(Rs in Lakhs)

Year	Membership	Share Capital	Total Loan Advance	Amount of Collections (in Rs)	Amount of overdue (in Rs.)	Percentage of overdue	Profit
1974-75	1,297	1 37	9 37	5 28	4 08	43 60	0 24
1975-76	1,850	2 48	21 35	11 96	9 38	43 97	0 25
1976-77	2,663	3 85	29 74	22 17	7 56	25 43	0 51
1977-78	3,935	5 37	35 56	25 82	9 74	27 39	0 88
1978-79	4,603	6 66	24 87	21 31	3 55	14 27	1 11
.979-80	4,792	6 54	22 93	25 34	Nil	Nil	1 53
1980-81	5,195	7 00	26 87	22 66	4 20	15 66	1 14
1981-82	5,992	9 64	68 45	46 06	22 39	32 71	1 24
1982-83	6,202	12 40	101 41	67 28	34 12	33 65	2 25
1983-84	6,742	16 27	112 25	89 59	22 66	20 19	3 65
1984-85	7,758	18 58	89 27	87 67	1 59	1 78	4 52

Source. Seventeen PACS Annual Audit Reports, Since 1974-75 to 1984-85
Note Loan advance, indicates both short and medium term loans

Table-2

Consolidated Statement of three PACS credit distribution by Farm-size

Year	Small & marginal farmers	Medium farmers	Large farmers	Total loan advanced
1980-81	9 57,940	4,10,970	94,345	14,63,255
	(65 61)	(28 08)	(6 44)	
1981-82	13,44,077	6,34,238	1,21,540	21,00,847
	(63 98)	(30.18)	(5 78)	
1982-83	19,82,106	9,11,665	1,72,750	40,06,376
	(68 64)	(27 12)	(4 24)	
1984-85	25,67,267	11,93,450	1,65,430	39,26,142
	(63 89)	(30 39)	(4 21)	

Source: C-Statements of 3-PACS, Year-wise
Note: Figures in bracket percentage to total

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Inter district differentials in value productivity in Punjab

J.L. Sharma

The rate of growth of agriculture in Punjab which once spearheaded the process of green revolution, has of late, slowed down and production is increasing marginally. The author underlines the need for special attention of the policy makers and others concerned to chalk out a proper strategy so that the underdeveloped districts make proportional contribution to the area occupied.

THE IMPRESSIVE GROWTH OF Punjab agriculture after the mid-Sixties is well known. The State spearheaded the process of Green Revolution and has rightly been called the grain bowl of India. The average foodgrain production in the State during the year 1986-87 and 1987-88 was about 264 per cent higher than the production level of 1966-67 and 1967-68. The achievement in case of wheat and paddy crops has been more spectacular where the production increased by 285 per cent and 1703 per cent, respectively in the corresponding period. Punjab has been annually contributing about 60 to 70 per cent of wheat and 40 to 50 per cent of rice to the Central pool of the country. This is indeed encouraging. However, in recent years, the rate of agricultural growth has slowed down and the production is increasing marginally. This requires searching for new measures and directions to accelerate the process of agricultural growth in the State.

It is often alleged that all the districts in Punjab have not witnessed a uniform growth in agricultural development process. This mav not be entirely due to any policy neglect but could be the result of poor resource endowment. To ensure overall rapid growtn with justice there is need to examine the districts which has lagged behind and identify the possible factors for this. The present study is an attempt in this direction. The findings of this study will generate data useful to the planners and policy makers for initiating proper policy actions.

Specific objectives of the study are:

(1. To examine the inter-district differentials in value productivity, and
2. To identify the factors with differentials in value productivity.

The data for the study were collected form Statistical Abstracts of Punjab, published by Punjab Government for the year 1986, 1987 and 1988.

For estimating the inter-district. differentials in value productivity, the gross value of all the important crops grown in the district was divided by the total cropped acreage of each district. The figures so arrived are presented in Table 1.

Table 1

District-wise Gross Value productivity, 1987-88

District	Value productivity per hectare	Percentage share to State total	Percentage area to total cropped area
Ludhiana	6,927	10 60	8 1
Jalandhar	6,690	6.58	8 1
Patiala	6,388	12 16	10
Ropar	6,090	2 92	2.
Sangrur	5,999	12 51	11
Kapurthala	5,700	3 58	3.
Gurdaspur	5,450	6.85	6.
Ferozepur	5,442	12 13	11.
Amritsar	4,808	9 29	10.
Faridkot	4,733	10 57	11.
Hoshiarpur	4,522	4.40	5.
Bhatinda	4,330	8 31	10.
State (Average)	5,334	100 00	100.

The average gross value productivity per hecta[re] works out to be Rs. 5,334, but there are noticeab[le]

inter-district differentials. The top two districts, viz. Ludhiana and Jalandhar have value output of Rs. 6,927 and Rs. 6,690 per hectare, respectively. The bottom two districts viz. Bhatinda and Hoshiarpur have the value output figures of Rs. 4,330 and Rs. 4,522 per hectare, respectively. Faridkot and Amritsar districts have value productivity of about Rs. 4,800 per hectare.

The bottom four districts viz; Bhatinda, Hoshiarpur, Faridkot and Amritsar have average value productivity less than the State average and are categorised as underdeveloped districts (Table 2). Gurdaspur and Ferozepur districts having value productivity of about Rs. 5450 per hectare are at the average level of development. Ludhiana, Jalandhar, Patiala, Ropar, Sangrur and Kapurthala districts are agriculturally developed districts having value productivity ranging from Rs. 5,700 to Rs. 6,927 per hectare.

Table 2

Categorisation of Districts according to their Level of Development, 1987-88

Category	District	Value production/ range (Rs/ha)	Level of Development
I	Ludhiana, Jalandhar, Patiala, Ropar Sangrur and Kapurthala	5700-6927	Developed
II	Gurdaspur, Ferozepur	5442-5450	Average
III	Amritsar, Faridkot, Hoshiarpur and Bhatinda	4330-4808	Under developed

It is worthwhile to mention here that the level of development of the districts has been worked out on the basis of productivity and not on the basis of total production, Certain districts which are classified as underdeveloped may have higher total production, but from the view point of value productivity per unit area, they are still at a lower level of development.

The percentage share of district-wise gross value productivity is given in Table 1. It can be seen from the table that the developed districts of the State accounted for 48.45 per cent of the total value output in the State while they covered 43.67 per cent of the total cropped area. On the other hand, underdeveloped districts covered 37.71 per cent of the cropped area but contribute 32.57 per cent to the total value output in the State. Gurdaspur and Ferozepur districts having average level of agricultural development occupied 18.62 per cent of the cropped area and contributed almost equally (18.98 per cent) to the total value output.

From the foregoing analysis, it can be concluded that the underdeveloped districts pointed out in the present study requires special attention of the policy makers, researchers and extension agencies to make their contribution to the State total proportional to the area occupied. This, however, requires a detailed analysis of the factors associated with the differentials in value productivity which are given below :

Value productivity largely depends upon the availability and use of resources like irrigation, fertilisers, tractors, human labour, credit and other infrastructural facilities. An attempt has been made to examine these factors for each district of the state. The relevant information is given in Table 3 and discussed below:

Irrifation facilities

If we examine the irrigation statistics (Table 3) alongwith the average value productivity (Table 1) for each district, it is apparent that higher value productivity districts have higher percentage of irrigated area. For example, top districts of Ludhiana and Jalandhar had about 98 per cent area irrigated,

Table 3

Resource Use in various Districts, Punjab 1987-88

District	Irrigation Percentage area under irrigation	Rainfall average of 5 yrs (cms)	Fertiliser consumption (kg/ha)	Number of tractors per 1000 ha.	Percentage agri workers to total workers	Number of tube-wells per 100 ha
Ludhiana	97 8	72 61	219 63	64	72 30	172
Jalandhar	97 5	92 02	131 11	49	69.50	195
Patiala	86 4	78 79	161 51	44	77.00	141
Ropar	59 5	94 06	144 28	29	64 40	103
Sangrur	95 2	61 06	136 14	35	83 10	120
Kapurthala	94 3	60.03	194.80	40	71 30	203
Gurdaspur	68 7	99.87	184 15	23	69 60	167
Ferozepur	93 4	86 08	141 38	35	85.30	99
Amritsar	98 9	72 53	171 58	27	73.90	170
Faridkot	89 5	42 35	167 23	54	84 50	55
Hoshiarpur	51.2	85 56	93 20	24	65.40	94
Bhatinda	81.0	35.41	110.56	37	84.30	19
State (Average)	87.2	70.03	152 94	40	76 30	117

whereas the lowest percentage (51 2) of irrigated area was found in the low productivity districts of Hoshiarpur, It can also be seen from the Table 3 that except Hoshiarpur the distribution of rainfall was also low in the underdeveloped districts Bhatinda and Paridkot districts, no doubt, had irrigated area ranging from 81 to 89 5 per cent but the area under assured irrigation of tubewell was very little as indicated by installation of tubewells, the figure being 19 per 1000 ha in Bhatinda and followed by Faridkot. From this analysis it can be concluded that the major policy thrust in underdeveloped districts should be ensuring the adequate and timely irrigation facilities.

Ludhiana district which was at the top in terms of average value productivity had the highest use of fertilisers, the figures being 219.63 kg per hectare, whereas, it was lowest in the agriculturally underdeveloped districts of Hoshiarpur. The remaining districts, however, do not depict clear relationship For example, in the agriculturally underdeveloped districts of Amritsar and Faridkot the use of fertiliser ranged from 167.23 to 171 58 kg which was higher than the State average of 152 94 kg. per hectare. Correspondingly, in the agriculturally developed districts of Jalandhar, Ropar and Sangrur, it ranged from 131.11 to 144 28 kg per hectare It can, therefore, be concluded that agriculturally underdeveloped districts of the State almost do not lag behing in terms of fertiliser use on per hectare basis

The data presented in Table 3 indicate a positive relationship between the level of agricultural development in the districts and the intensity of tractorisation. In the top value productivity districts of Ludhiana, Jalandhar and Patiala, the number of tractors ranged from 44 to 64 per 1000 hectare. whereas, in the agriculturally underdeveloped districts of Amritsar, Hoshiarpur and Bhatinda it ranged from 24 to 37 Among other factors, low intensity of tractorisation in under-developed districts could be attributed to the fact that very large percentage of holdings occurred in small size classes in these districts. Custom hiring facilties in these districts needs to be arranged at various levels.

Labour

The availability of human labour was found to be inversely related to the level of agricultural development in the districts. As can be seen from Table 3, the top productivity districts of Ludhiana and Jalandhar have 69 to 72 per cent of agricultural workers, whereas, the bottom productivity districts of Faridkot and Bhatinda have about 84 per cent of agricultural workers to total workers. Higher concentration of agricultural workers in the underdeveloped districts could be due to lack of avenues for non-farm employment opportunities for which suitable policy measures need to be initiated.

An attempt has also been made to analyse some other features of districts such as education, development of roads, banking and drinking water facilities The relevant information presented in Table 4 has been discussed below:

Table 4

Some Economic Features of the Various Districts, Punjab, 1987-88

District	Education			Banking		Roads	Drinking water
	Percentage of literate to total population	Number of high/higher sec. schools per lakh of population	Number of collages & universities per lakh of people	Number of banking office per lakh of people	Nembers of cooper societies per 1000 of population	Percentage of villages linked with pucca road	Percentage of villages with drinking water scarcity to total no. of villages
Ludhiana	43 7	18 39	3 03	30	223	99 3	0 6
Jalandhar	44 1	17 21	2 14	33	205	100 0	0 3
Patiala	32 4	10 93	1 45	20	100	99 6	23 9
Ropar	43 8	16 84	1 42	20	170	97 1	51 6
Sangrur	25 8	13 50	1 10	16	234	100 0	69 1
Kapurthala	40 4	15 98	3 94	25	152	87 6	0 2
Gurdaspur	40 0	10 75	1 18	17	76	100 0	20 3
Ferozepur	26 4	10 62	1 09	18	81	83 5	33 4
Amritsar	33 2	13 02	1 23	26	96	99 8	7 9
Faridkot	28 8	16 57	1 92	19	136	100 0	89 4
Hoshiarpur	48 3	17 00	1 32	18	205	99 0	37 1
Bhatinda	22 2	12 15	0 89	17	120	100 0	100 0
State (Average)	35 2	14 14	1 16	16	146	97 4	30 0

Literary

The population of agriculturally developed districts is relatively better educated. For example, in the agriculturally developed districts of the State, the percentage of literates to total population ranged from 40.4 to 44.1 per cent. In underdeveloped districts of Bhatinda, Faridkot and Amritsar it ranged from 22 to 33 per cent. It is worthwhile to mention here that the availability of education facilities as indicated by number of high/higher secondary schools/colleges/ universities per lakh of population (Table 4) was relatively lower in the agriculturally underdeveloped districts of the State. This requires the attention of the planners and policy makers for ensuring these facilities on uniform basis.

Banking

As in case of education, there is noticeable disparities regarding the avilability of banking facilities in the agriculturally developed and underdeveloped districts of the State. The data presented in Table 4 shows that the top productivity districts of Ludhiana and Jalandhar have 30 to 33 banking offices per lakh of population whereas, the underdeveloped districts of Bhatinda, Hoshiarpur and Faridkot have only 17 to 19 banking offices per lakh of population. Similarly, the membership of co-operative societies per 1000 of population was higher in agriculturally developed districts of the State.

Development of roads is imperative for the economic development of an area/region/district. It is satisfying to note that this facility was almost uniformally developed in all the districts of the State. Ferozepur and Kapurthala districts, however, still requires this facility

The data presented showed that all the villages in the agriculturally developed districts of the State have adequate drinking water facilities whereas, the scarcity of the same was felt in almost all the underdeveloped districts of the State This disparity needs to be checked on priority basis.

From above it can be concluded that the agriculturally underdeveloped districts of the State also lagged behind in getting facilities such as education, banking and drinking water. These areas deserve urgent attention

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Table-4 shows that majority of the farmers had dues with PACS due to the failure of irrigation wells. Their main source of irrigation was wells. The percentage of defaulters coming under this category was 47.

Table-3

Reasons for Over due

Sl.No.	Reasons	No. of Farmers	Percentage of defaulters
1	Failure of irrigation	28	47 0
2	Failures of crops	12	18 0
3	Due to old debts	9	14 0
4	Natural calamity	7	10 0
5	Heavy Non-farm Expenditure	5	7 0
6	Increasing the prices of inputs	3	4 0
	Total	64	100 0

Source: Primary schedules

Conclusions

The following are the main conclusions that emerged from the study.

The analysis shows that the cooperatives over a period of 1950-51 to 1985 have increased their share from mere 3 1 per cent to 37 per cent. The progress of cooperative movement in Domakonda taluka of Nizamabad district also witnessed a tremendous change in terms of its membership and loan advances

As far as the question of lending procedure is concerned, it has undergone perceptible change over a period of time. It is simple and favourable to common man

Regarding caste-wise distribution of loans, it was 50 per cent to weaker sections instead of 75 per cent

On the problem of overdue: the percentage of defaulters in the primary study registered was about 25 Majority of the farmers who are found defaulters attributed this to failure of irrigation wells. In this taluka, 90 per cent farmers had energised pumpsets and their success in growing crop depended on power supply Due to shortage of power, 50 per cent farmers were unable to repay loan in time The other major reason for overdue was increasing farms inputs, including daily wages in the area

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Bringing up cardamom export

Mohd. Tufail Khan

Cardamom, the "Queen of Spices", is the second largest foreign exchange earner among the major spices exported from India. Of late, there has been a decline in its export. The author examines the causes and spells out measures to ensure it a pride of place in the global market.

THERE ARE A NUMBER OF spices grown in India Cardamom, considered as the 'Queen of Spices', is one of the traditional items of export It is the second largest foreign exchange earner among major spices exported from India However, in recent years its performance has been dwindling and as a result, the share of cardamom in the total export earnings from spices, after reaching a peak level of 35 8% in 1978-79 came down to 1 1% in 1987-88 Similarly export of cardamom declined by 85% in 1987-88 over 1960-61 and the share of its export in total production after touching a commanding height of 76 7% in 1963-64 crashed to 9.4% in 1987-88 In this article an effort has been made to critically examine the development of cardamom in relation to exports and the related problems hampering export promotion of the queen of spices Several remedial measures have also been suggested for ensuring its growth and boosting export Table 1 gives the trends in export of cardamom during 1960-61 to 1987-88

It appears that export of cardamom came down by 85% i e from 2 thousand tonnes to 0 3 thousand tonnes in 1987-88 over 1960-61 It was mainly due to low production as well as higher domestic consumption In the year 1978-79 India exported maximum quantity i e , 2 9 thousand tonnes The total value earned also declined to Rs 3 4 crores from Rs 3 6 crores– an overall decrease of 5 6% during the period under study. It is also evident from the table that the rate of decrease in value earned was much lower than the rate of decrease in quantity exported This lesser decrease in value earned is ascribed to increase in unit value realisation in international markets

Table 2 is indicative of export earnings from spices and the share of cardamom in total export earnings from spices It is seen from Table that the export earning from spices increased from Rs. 16 4 crores to Rs 298 0 crores between 1960-61 and 1987-88, indicating an overall rise of 17% while the export earnings from the export of cardamom declined to Rs 3 4 crores in 1987-88 from Rs 3 6 crores in 1960-61, a fall of 5 6%. Consequently the share of cardamom in total export earnings from spices went down from 22% to a meagre 1 1% during the same period This was mainly due to a higher rate of increase in the export earnings in case of other spices Other reasons ascribed to fluctuations in export are higher domestic consumption, low production and stiff competition from Guatemala, which produces better quality and offer lower prices than quoted by India.

Data set out in Table 3 show that the total proudction of cardamom went up to 3 2 thousand tonnes from 3 0 thousand tonnes in 1987-88 over 1960-61 showing an overall increase of only 6.7%. At the same time exports of cardamom declined from 2.0 thousand tonnes to 0 3 thousand tonnes i e by 85% over the period under reference. Table further indicates that the share of cardamom export in total cardamom production was 66 7% in 1960-61 which declined to 9 4% in 1987-88, a fall of 57 3%.

Table 1

Trends in exports of small cardamom during 1960-61 to 1987-88

Year	*Quantity Exported ('000 tonnes)*	*Value Earned (Rs in crores)*
1960-61	2 0	3.6
1963-64	2 3	3.2
1966-67	1 7	8 1
1969-70	1 1	8 9
1972-73	1 4	6 8
1975-76	1 9	19.4
1978-79	2 9	55.4
1981-82	2 4	31.1
1984-85	2.4	64.8
1987-88	0 3	3.4

Source Directory of Exporters of Spices (1985) Published by Spices Export Promotion Council Cochin
Customs list - Supplied by Spices Board Cochin

Table 2

Share of small cardamom in export earnings from spices during 1960-61 to 1987-88.

Year	Export Earnings from Spices (Rs. in crores)	Export Earnings from Cardamom (Rs. in crores)	% share of Cardamom in total Export Earnings
1960-61	16 4	3 6	22 0
1963-64	15 3	3 2	21 0
1966-67	27 8	8 1	29 1
1969-70	34 5	8 9	25 8
1972-73	30 6	6 8	22 2
1975-76	72 7	19 4	26 7
1978-79	154 9	55 4	35 8
1981-82	92 3	31 1	33 7
1984-85	208 6	64 8	31 0
1987-88	298 0	3 4	1 1

Source: Same as table 1

Table 3

Percentage share of exports to production of small cardamom from 1960-61 to 1987-88

Year	Production ('000 tonnes)	Export ('000 tonnes)	% share of Export to production
1960-61	3 0	2 0	66 7
1963-64	3 0	2 3	76 7
1966-67	4 0	1 7	42 5
1969-70	3 0	1 1	36 7
1972-73	2 9	1 4	48 3
1975-76	5 2	1 9	36 5
1978-79	5 1	2 9	56 9
1981-82	8 6	2 4	27 9
1984-85	4 3	2 4	55 8
1987-88	3 2	0 3	9 4

Source: Production—Directorate of Economics & Statistics, New Delhi (Export—same as table 1)

From the foregoing analysis it is clear that the export performance of cardamom has been badly affected. It is also clear that a very low percentage of production is left for exports because of higher domestic consumption According to Mr. Mariwala, (Vice-Chairman of Spices Board), world demand for small cardamom is estimated at 12 thousand tonnes by the end of this century and India's target has been fixed at 4 8 thousand tonnes It is a challenge for India Keeping this in view, the present export performance shows lack-lustre trend To meet this challenge total production needs to be increased at a very fast rate by intensive and extensive cultivation methods.

It is well known that the productivity of cardamom in Guatemala is very much high and it is now in a position to offer cardamom at comparatively cheaper rates, to buyers in the international market. This is a major threat to Indian cardamom plantation Indian Cardamom Plantation.

This growing threat to Indian cardamom from Guatemala can be met only by increasing the production of cardamom from unit area in India However, the fact remains that there are a large number of cardamom plantations in the country, where production levels are at par with or higher than that in Guatemala. This points out the enormous scope for increasing production in the country through judicious application of inputs and provision of high yielding, drought and disease resistant planting material.

Till the end of the seventees India was the largest producer and exporter of Cardamom. Now, the position has changed and Guatemala tops first in production as well as export, pushing India to the second place. One of the basic reasons for such a change is that the average productivity of cardamom in India is very much low as compared to Guatemala The main factors responsible for low productivity has been non-availability of planting materials in high yielding clones and existence of old, diseased and uneconomic plants. Another major factor is that cardamom is suffering from severe drought in the high ranges of Kerala and Karnataka resulting in destruction of several plantations

94% of cardamom growers in Kerala and Karnataka are small holders and majority of them are ignorant about the need for cultural operations to be carried out for increasing production. Also, these farmers are not in a position to bear the loss of income during the gestation period which extends upto three years. The threat of deforestration is another major constraint in the development of cardamom plantation.

Indian cardamom is not in a position to compete with other producer/exporting countries on price front Guatemala now offers the commodity at Rs. 140 to Rs. 150/- per kg., but India is finding it difficult to offer at these prices. It often offers at Rs. 200 per kg and above. Other major problems are disruption in supply to established markets as well as new markets, lack of drying and processing facilities, uneven grade standards, unsatisfactory preshipment inspection suited to importing nations and lack of air-tight stores which turn the colour of cardamom from green to yellow. There is lack of research facilities which can evolve better techniques of quality control and post harvest. There is also lack of facilities for setting up industries for extraction of cardamom essence and oil.

Suggestions

The basic strategy for increasing export would lie in the development of production and raising a surplus. Thus, the programme for increasing the production and productivity of cardamom should be based on both short term as well as long term basis The short term measures are: adoption of scientific manuring, plant protection measures particularly control of 'Thrips' and 'Katte' disease and making

(Contd. on page 34)

Poverty alleviation through NREP-A Study

A. Ethirajulu Naidu

The study of the impact of NREP on employment generation in this case is uneven. It has helped the targeted groups no doubt, but its vitality is sapped by a series of distortions. The attempt is half hearted and often aimed at spending the allotted fund within a targeted period with corruption making its inevitable inroads. The author lists the priorities and calls for proper dovetailing of the short and long term measures to make NREP more meaningful.

THE NATIONAL RURAL employment programme aims at creating wage employment for the unemployed and under-employed in the rural areas. Its objectives are:

(a) generation of additional gainful employment for the unemployed and under-employed persons in the rural areas,

(b) creation of durable community assets for strengthening the rural infrastructure, and

(c) improvement of the nutritional status and the living standards of the rural poor.

Chittoor district in Andhra Pradesh is a backward district, as is one among the districts reserved for Scheduled Castes. Unemployment and under-employment pose a problem in rural areas. This gets accentuated during the lean period of agricultural operations. Raising the income levels of the poor and strengthening the rural infrastructure are necessary to rejuvenate the economy of the district. This district is, therefore, in need of the implementation of the NREP which aims to provide gainful employement and strengthen the rural infrastructure

The NREP was launched in Chittoor district, Andhra Pradesh in October 1980 replacing the Food for Work Programme. Since then, the programme has made a steady progress in generating more mandays of work in the district which is a drought-prone district The present study aims at evaluating the working of the NREP in Chittoor district comprising 22 blocks based on secondary data and discussions with the officials concerned.

Table-1 gives the progress of the NRE Programme in the district relating to panchayat raj sector It shows that there is a steady increase in the percentage of generation of employment over the five year period from 1982-83 to 1986-87. The actual achievement is almost equal to the target of employment in 1984-85 and 1985-86 But the performance of the programme was poor in 1982-83, it improved a little in 1983-84 and was encouraging in 1986-87

Table 1

Progress of the NREP in Chittoor District

Sl No	Year	Expenditure incurred (in Rs. lakhs)	Target of employment (in lakh mandays)	Actual achievement (in lakh mandays)
1	1982 83	57 49	8 74	3 49 (40)
2	1983-84	136 28	10 46	7 26 (69)
3	1984-85	198 15	11 02	10 61 (96)
4	1985-86	115 62	5 54	5 13 (93)
5	1986-87	170 95	7 54	[illegible]

Note. Figures in parentheses indicate per centages to the totals
Source D D O , Zilla Praja Parishad, Chittoor

The NRE Programme is supposed to help the targeted groups like the landless labour, in particular the women labour amongst the Scheduled Castes and Scheduled Tribes. Table 2 indicates the generation of employment among the targeted groups. The table shows that the NRE Progamme has benefited the SCs and STs by providing them between 45 to 50 per cent of job opportunities created under the programme. In particular, landless labourers accounted for 95 per

cent of employment generation in 1985-86 and 69 per cent of employment generation in 1986-87. In other words, more than two-thirds of beneficiaries under the programme belonged to the landless labourers. But women beneficiaries in 1985-86 constituted only 8 per cent of the beneficiaries. Their percentage improved to 22 in 1986-87 indicating a welcome change in the composition of the beneficiaries in favour of the targeted group.

Distortion

But a very disturbing feature of the working of the NRE Programme is that employment was not provided to the targeted groups during lean periods of agricultural operations as per the guidelines. A high percentage of funds allocated under NREP was spent in September and March of every year.

Table 2

Generation of Employment Among the Targeted Groups

Sl No	Year	Total	SCs	STs	Others	Women	Land less
		Employment Generation (in lakh day)					
1	1982-83	3 49	1 46	0 35	1 68 (48)	N A	N A
2	1983-84	7 26	2 85	0 46	3 95 (54)	N A.	N A
3	1984-85	10 61	4 10	1 02	5 49 (52)	N A	N A
4	1985-86	5 13	2 00	0 44	2 69 (52)	0 39 (8%)	4.85 (95%)
5	1986-87	6 48	2 41	0 55	3 52 (54)	1 44 (22%)	4 45 (69%)

Note: Figures in parentheses indicate the percentages
Source: D D O Zilla Praja Parishad, Chittoor

The table below reveals this fact relating to 1986-87

Table 3

Sl. No.	Month	Expenditure (Rs. lakhs)	Employment Generation (lakh mandays)
1	April	2 30	0 085
2	May	2 30	0 155
3	June	5 04	0 246
4	July	6 00	0 302
5	August	24 39	0.876
6	September	34 17 (20%)	0 958 (15%)
7	October	6 59	0 284
8	November	15.00	0.630
9	December	8.86	0 363
10	January	9 86	0.389
11	February	2.94	0 145
12	March	53 47 (31%)	2.049 (32%)
Total		170.92	6.482

Source: D.D.O., Zilla Praja Parishad, Chittoor.

From the above table it is evident that nearly 51 per cent of funds were spent in September 1986 and March 1987 leading to employment generation of nearly 47 per cent. It clearly indicates that there is March rush' in spending funds giving a go-bye to the guidelines of NREP and creating lot of scope for corruption among the officials who were involved in the implementation of the programme.

The following deficiencies are noticed in the implementation of the programme in the district. No specific survey has been undertaken to assess the size of unemployment and under-employment in the rural areas. The type of works to be executed were determined at the State level without consideration of the felt-needs of the people. Too many schemes were taken up for execution resulting in a very thin distribution of the funds. As a consequence, no village in the district experienced the impact of the NRE Programme as an anti-poverty programme. The belated release of funds by the Government has resulted the "March rush" in spending them. There is no provision for adequate administrative and technical staff at the district level for implementing the programme and monitoring the physical achievements of the programme such as generation of employment and assets created etc. Lastly, instances of contractors involving in the execution of the works are rampant.

Suggestions

The following suggestions are offered to make the programme more effective.

(1) There should be a clear lay out of priorities of the works which are undertaken under NREP for raising the productive capacity of the soil Besides creating employment opportunities

(2) The schemes have to be taken up broadly on panchayat basis but also keeping in view some aspects of clusterisation so as to enable a meaningful percentage of the target group to reap the benefits of the NRE Programme.

(3) There is an urgent need to integrate the various programmes of rural develoment for there are too many rural development progrmmes which are implemented without any coordination and coherence resulting negligible impact of the various schemes.

(4) Planning from the grassroots level should not be delayed any more.

(5) There should be a special cell to monitor the progress of the NREP Programme.

(6) There should be correct and tight estimates of works and regular payment at prescribed rates for the prescribed work output to prevent the infiltration of contractors into NREP schemes.

(7) More and more active involvement of the people will result in speedy and sound execution of community assets.

No programme is adequate enough to alleviate rural poverty and unemployment. Hence, the NREP which provides short-term relief through employment should be implemented as a complementary scheme to the IRDP which contains a long-term perspective to increase income and employment. □

The author is Research Scholar in Economics, Sri Venkateswara University College, Tirupati

Nook & Corner

Symbol of service

At Mundarithope, Annanagar, Madurai in Tamil Nadu, is an hospital, with a difference The Aravind Children's Hospital. It has just entered the seventh year of its existence. Its activities are spread over 20 villages and three slum areas. The thrust is on mother and child care. To ensure this, Health Committees have been set up in every village. Each member of the Committee is in charge of 20 to 25 families The members who are doing honorary service educate and motivate the people about the measures to be taken to prevent common diseases

Children below 12 under go medical check-up in the hospital. Special care is taken to prevent blindness among children due to Vitamin A deficiency.

Self-employment of women

The Asian Institute of Rural Development, Bangalore (AIRD), supported by APPOTEC ASIA, Manila, has taken up for implementation a project for self-employment of women through papad-making. Rural women in Ramanagaram, Banglore District are given training and other support services. The aim is to provide sustained work to the trained persons for manufacture of papads and arrange for maketing of the products so as enable them to earn an income of at least Rs 500 per month

The 42,300 rupee project with a monthly production of 1,50,000 papads earning a monthly net income of Rs 4,230 for a period of one year is expected to become self-supporting and viable Rural women belonging to the weaker sections are the beneficiaries of the project

Literacy among tribals in A & N

There was no Government school for the tribals in the Andaman and Nicobar Islands before Independence There was only one Vernacular School with 30/35 children on the roll It was run by the Cathadrel Church at Mus village of Car-Nicober Islands. Percentage of literacy was almost nil But now there are two Pre-primary schools, one Asram School, 36 Primary schools, eight Middle schools (including one Navodaya Vidyalaya), five Secondary schools and four Senior Secondary Schools for the tribals In all there are more than 7190 children. Percentage of literacy of the tribal population since Independence has gone upto 31.33%.

Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana has convened an essay competition open to ladies only.

The subject of the essay is–Girl in Indian Society.

There will be three prizes– 1st prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so.

The last date for receipt of the entries in will be 25.9.90.

Book Review

Rural Development: A Critical Appraisal by L.C. Garg and Sadhna Jindal, published by Nitasha publications, Sonepat, pp. 183, Rs.250/-

The issue of rural development is very complex and this cannot be treated casually without taking into consideration the total socio-economic and political reality of India. The book Rural Development: A Critical Appraisal by Garg and Jindal is another new addition to the whole gamut of books in this field There are about 5,80,000 villages in India. The constituent of these villages are invariably suffering from developmental crises of one sort or the other due to lack of serious democratic decentralised planning and implementation. To make the village stand as unit on its own feet the socio-economic base has to be participation. Otherwise rural development per se would be an illusion. Of course different researchers have different perspectives to understand the term and the issues of rural development When a person, particularly a researcher, talks of "rural development" the questions which usually come to mind are: What is rural development? Why rural development? For whom rural development? etc. The dynamics of rural development demand the answers to these salient questions.

The book under review cannot be said to be a well-researched one.The treatment is not focused but casual in nature and content. The authors talked about various aspects related to rural development in general terms diffusedly than critically as the title evinces. The time has come that we cannot be lackadaisical about rural development as rural society is the backbone of our nation. Issues related to rural development should be taken up pointedly and seriously, then only it would be possible to study and evaluate the rural development critically The book by Grag and Jindal tried to attempt to appraise various aspect of rural development like concept of rural development Panchayati Raj, coordination, people's participation and democratic decentrlisation, land reforms, area development generalisations without any references and bibliographical notes. The authors could have made the book interesting by taking certain aspects of rural development critically with the help of certain perspective of social sciences rigorously. The book has severral typographical mistakes.

Dr.M.C.Paul

(Contd. from page 30)

available high yielding, disease resistant varieties emerging out of different research centres. Extension of advisory services and irrigation facilities are also of considerable importance. As a long term measure , it is suggested that cardamom cultivation should be extended to non-traditional areas

In order to maintain India's position as a leading producer and supplier in the international market a high standard of quality and reduction in the cost of production are necessary for augmenting the exports of cardamom. This can be achieved by increasing yield rate. In many countries Indian cardamom does not get full value because of some constraints such as delay in transporation and delivery. In view of this, warehousing facilities should be provided in the major importing countries Added to this, there should be provision for sufficient air-tight storages so that the aroma of cardamom could be saved. For popularising cardamom in world markets there is an urgent need for introducing a brand name as a guarantee of purity and high quality to the foreign consumers

Prices of Indian cardamom are generally higher than other competitor countries. Therefore, an effort should be made to sell the produce at competitive prices in international makets India should also maintain regular supplies to her traditional buyers as well as new importers.

It has been observed that the Malabar type is comparatively drought tolerant with promosing yield Cultivation of this variety should therefore be encouraged This will also help prevent diversion of Alleppey Green towards domestic market.

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Immunization Technology Mission

All the 450 districts of the country are covered by the Universal Immunization Programme. The programme is being implemented through the network of Primary Health care infrastructure which consists of one Subsidiary Health Centre for every three to five thousand rural population, a Primary Health Centre for every 20 to 30 thousad population and a referral centre called Community health Centre for every 80 to 120 thousand population.

The Universal Immunization Programme was launched in 1985 with the target of Universal Child Immunization by 1990 in pursuance of achieving 'Health for All' by 2000 A.D. A Technology Mission was set up in 1987 for vaccination of children and pregnant women. The objectives of this programme were widened from not merely increasing levels of vaccination coverage but also moving towards a status of self-reliance in the area of vaccine production and other equipment.

The country is today self-sufficient in vaccine production except in the case of Oral Polio Vaccine. When the programme was initiated, the entire quantity of measle vaccine required was imported. Today it is produced indigenously. As far as Oral Polio Vaccine is concerned it is hoped that by 1991-92, indigenous production would be possible.

The thrust in the Eighth Plan period would be on sustaining the increased levels of coverage and move in the direction of achieving the ultimate objective of eradication of diseases which can be prevented by vaccines.

Supply of drinking water in M.P. and Rajasthan

Government has decided to allocate 25 per cent of Calamity Relief Fund to Madhya Pradesh and Rajasthan for the supply of drinking water in 1990-91. This has been done to mitigate the scarcity of drinking water in these two States in the summer months. Madhya Pradesh will get Rs. 6.93 crores and Rajasthan, Rs. 23.25 crores.

Meanwhile, the Department of Rural Development has sent spcial technical teams to these States to identify and find a solution to the lowering of water levels.

Zinc as yield Booster

Application of zinc to alkali soils have proved to be profitable. Normally zinc is supplied in the form of zinc sulphate in addition to pyrite or gypsum for raising a good crop of wheat on alkaline waste soils. Use of one kg of zinc sulphate results in additional 56 kg of wheat. This has been reported by three scientists of the Narendra Dev University of Agriculture and Technology, Kumarganj (Faizabad), Uttar Pradesh after field experiments done by them for three years on alkali wate-lands.

It has been found that zinc sulphate used at the rate of 30kg per hectare increased the wheat yield from 10 to 36 quintals per hectare, almost twice that of fields which did not receive any zinc sulphate. This achievement has made many a UP farmer take stock of his farm, as 1.15 million hectares in this State suffer from alkalinity.

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YOJANA 33 years ago
July 14, 1957

Vana Mahotsava

Our trees have roots not only in our soil but also in our history and tradition. Rama spent fourteen years of his exile in forests; Krishna played on his magic flute in the groves of Vrindavan. Under the shade of a Peepul tree, Siddharth attained Nirvan and was called Buddha or the Enlightened. And yet the groves that were cradles of our civilization are now lying desolate. Only about 22% of our total land area is under forests-3% below the safety mark.

Nature's Laboratory

Mother Nature is generous enough, if only man would stop interfering. Leave her alone and she will fill the lap of the earth with gifts in, plenty. The eroding river bank, the bare hillside and dwindling rice fields are but the price of man's folly. We are learning slowly the secrets of Nature's laboratory. It is enough to give her the protection of a barbed wire fence and then stand by and watch her work.

Our Civic Sense

It happened in a crowded residential block of flats. The housewife on the first floor carelessly emptied her slop-bucket over the edge of her verandah. We watched horrified as the dirty water splashed on half a dozen innocent heads in the courtyard downstars. If the sinner heard the commotion which followed, she gave no sign of having done so. Apparently she took it as calmly as another of her tribe who threw coconut shells out of her kitchenwindow on the pavement three storeys below.

Pledge to Boycott Death Feast

Thirty-eight Panchas and Sarpanchas of 20 village panchayats attending a 5-day Village Leaders' Training Camp at Sonwa, 5 miles from Tonk, took a pledge neither to hold nor participate in any 'Mosar' i.e. death feast. The Panchas and Sarpanchas assembled at Sonwa also resolved to administer similar oath to the Sarpanchas at the Tehsil Panchayat meeting.

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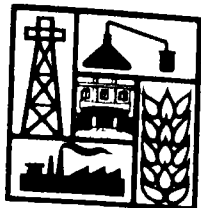
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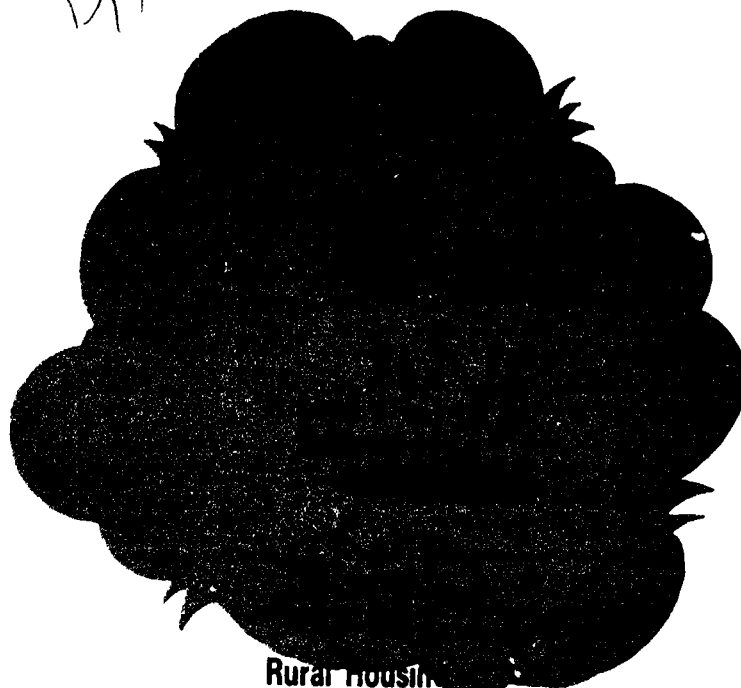
The service of India means the service of the millions who suffer. It means the ending of poverty, ignorance, disease and inequality of opportunity. As long as there are tears and suffering, so long our work will not be over ....

A new chapter has begun in this fascinating story of rural India, a new drama is being played in our broad fields and our innumerable villages. The actors in this drama are the tens of thousands of our village workers, organisers etc. Indeed, the actors should include every man and woman and even child. May all of them have this sensation of playing in this great game of building up India.

— Jawaharlal Nehru

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Tasks Ahead

Self-reliance has been our major objective ever since we attained Independence. There is no denying the fact that significant progress has been made since then in various sectors including agriculture, industry, education, health, telecommunications, transport, energy, science and technology. However, if we reflect and look back, would we be satisfied with what we have achieved so far especially in the field of rural development ? The answer, unfortunately, would be in the negative.

It is said that India lives in villages. But have we been able to improve the lot of our brethren living in the villages ? The answer could be in affirmative as well as in negative. On the one hand, it is claimed that a lot has been done to uplift the rural poor and there are facts and figures to support this, on the other, we are still struggling to provide even safe-drinking water to a sizeable number of villages. Poverty alleviation is still the most important aspect of our rural development programme. We have been unable to generate adequate gainful employment for unemployed rural youth. However, there is no need for despondency as the Government has rededicated itself to make the Rural Development Programme a real success.

In this background, we have devoted our Independence Day Special issue to Rural Development and its various aspects. These are discussed in depth by eminent personalities and top experts including economists, sociologists, demographers and administrators, who have contributed their thought provoking write-ups for this issue. We hope the readers will find the issue stimulating.

Rural development– some reflections

R.C. Dutt

In this analysis of rural backwardness, the author probes the root causes of the malady. He notes the inherent class conflict and increasing stranglehold of the vested interests. The technological progress in Indian agriculture or the process of industrialization as such could do little to improve the situation, divided as it is on regressive socio-economic lines. In fact, the problem is now brought out in the open. A veteran administrator, the author throws light on the serious implications of the much vaunted "green revolution" which has created isles of affluence in the sea of poverty and deprivation. Also, the validity of the percolation theory of the rural development programmes has been subject to close scrutiny. The solution offered by the author is land reforms. He lauds the effort of constitutional amendment to place the ceiling laws in the Ninth Schedule and counsels watchful steps to protect it from the evil designs of the vested interests. The author singles out cooperative venture in farming as it takes care of the issue of fragmentation of farms and the landless.

INDIA LIVES IN THE villages. This adage which emphasises the agrarian character of the Indian economy and to which such pointed attention was drawn by Mahatma Gandhi, continues to be true to this day inspite of the industrial development that has taken place in the last four decades since Independence. The Industrialisation has not made any substantial difference to the proportion of the population that lives in the villages, though the exodus from villages in recent years has created problems and added to the urban slums.

The importance of rural development, looked at broadly as such, is further intensified by the fact that poverty, the eradication of which is the supreme objective of all development efforts has the widest incidence, and in fact its source in rural areas It is the landless rural labour that forms the largest reservoir of poverty in the country, and is the source of urban poverty too. Industrialisation can to an extent reduce the incidence of poverty, specially urban poverty, but to have this effect, industrialisation not only has to be labour-intensive, but perhaps more importantly, mass-based. The latter characteristic, namely, the mass-base, can be acquired by production of goods and services of mass consumption, sustained by steady increase of the purchasing power of masses, resulting from additional employment created by the labour intensity of the industries concerned Indeed, it is only such mass-base that can ensur continued expansion of industries leading to a lev of industrialisation commensurate with the size an population of the country Industrialisation based o elite consumption, on the other hand, has limite potential The narrowness of the base restricts i growth It can create only islands of affluence in th surrounding sea of poverty

Conflic

In the ultimate analysis, therefore, it is rur development in the broad sense of the term th holds the key to all economic progress, industrial agrarian, urban or rural There is no basic confli between rural and urban interests, between industr heavy or light, and agriculture The conflict is real between the elite and the masses And this confli exists as much in urban areas between the urban eli and the urban poor, as in the rural areas between th rural elite and the rural masses.

The apparent conflict between urban and rur interests is really between the comparatively afflue middle and upper middle classes of the urban are who had hitherto considerably influenced St policies, and the growing class of surplus-producin relatively better off rural farmers who want displace the former and attract the bounties of t

ate. This does not negate the basic conflict between ıe rich and the poor, which continues to exist in ıral and urban areas, and is not obliterated by the aim of the richer farmers to speak on behalf of the ıtire rural community as *Kisans*.

There is indeed a constant struggle between the ch and the poor to divert investible resource for the enefit of their respective groups. It is this dichotomy,

There is no basic conflict between rural and ırban interests, between industry, heavy or ight, and agriculture. The conflict is really ›etween the elite and the masses. And this onflict exists as much in urban areas between he urban elite and the urban poor, as in the ural areas between the rural elite and the ural masses.

ıot that between the urban and the rural economy, or ›etween industry and agriculture, that is undamental. Industry, even heavy industry does not ıecessarily represent the interests of the rich. It lepends on what use is made of the industry. Heavy ndustry is justified, but only to the extent that it ›rovides material capital in the form of metals and ninerals for the employment of the masses, urban ınd rural, or inputs for the benefit of the poor. Power generation, for instance, provides the energy equired for all types of economic activity, as also to mprove the quality of life. Investments for nanufacture of power generation equipment are, herefore, not opposed to the interests of the masses.

In this struggle between the rich and the poor, it is he former who are better organised and more ırticulate and who therefore, prevail. This applies as

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much to urban as to rural areas. The industrial bourgeoisie who are the best organised and the most influential succeed, in their pursuit of profit, to divert resources for elite consumption. Similarly, the rural capitalists who have established themselves in Punjab, Haryana, West Uttar Pradesh and parts of Andhra Pradesh make their claim felt on the available resources. Again, the organised workers who are comparatively affluent make their demands felt, while the unorganised workers are utterly neglected. So are the village artisans, and even more so the rural landless labourers.

It is not the distinction between the urban and the rural, therefore, that is basic. A rural landless labourer is no less a subject of concern when he migrates to urban area and dwells in slums or sleeps on the pavements, nor does an urban rich lose his acquisitiveness merely by migrating to a village to become an affluent money lender or a wealthy land-owner. More important in a democratic set-up are interest-groups who influence both the democratic processes and the decision making mechanism. Democracy to be fair, in fact in order to survive, must not only resist the unjust demands of privileged interest-groups, but try to introduce a measure of economic and social equality among them.

Heterogeneity

The indentification of rural economy as the object of neglect is harmful when it seeks to cover up the real conflict of interests that exists in the rural communities. The rural communities as exist in India today is not homogeneous. It is characterised by acute differences in economic status supplemented

... Fixation of foodgrain prices at sufficiently high levels and provision of subsidies to inputs like fertilizer, water and electricity, even to the extent they are justified, do not exhaust the scope of rural development with social justice. ... higher prices of foodgrains and higher Government expenditure in the form of subsidies, by generating inflationary pressures, hurt the marginal farmers who have no surplus to sell, as also the village artisans, and above all the landless labourers who lack even the means of production.

by the social hierarchy created by the traditional caste system. Any attempt on the part of the poor and the deprived to break through this hierarchy is strongly resisted and results in atrocities' which have been reported in recent years with such sickening frequency from all parts of the country. The recent instance from a village in Uttar Pradesh, the heart-land of India, where a poor agricultural labourer was burnt to death, because he resisted the lustful eyes of landlord on his wife, is not an isolated one. It throws up in stark nakedness the reality of inequality and oppression that exists in a land where the founding fathers of the new Republic after Independence dreamt of and inscribed in the Constitution the concepts of Liberty, Equality and Fraternity.

The task has by no means been completed by the adoption of the Constitution; and yet, the champions of rural India will have us turn a blind eye to this reality. Claiming to represent the *Kisans*, whom they identify with surplus-producing landowners, their movement voices demands which would benefit them. Though many of their demands are exaggerated there is undoubtedly logic behind their basic demand

that foodgrain prices should be so fixed as to provide incentive for their production. In the present context where lack of purchasing power depresses effective demand and therefore the prices of foodgrains, and where surplus production is in private hands and responds to price incentives, there is no option but to fix prices sufficiently high to produce the required quantity of foodgrains, though this may mean correspondingly high Government expenditure in the form of subsidies. Nevertheless, fixation of foodgrain prices at sufficiently high levels and provision of subsidies to inputs like fertilizer, water and electricity, even to the extent they are justified, do not exhaust the scope of rural development with social justice. They at best deal

The self-sufficiency that the 'Green Revolution' brought about, however, was based on gross inequality of income distribution. The country became self-sufficient in foodgrains not because the nutritional needs of the people were satisfied but because a substantial proportion of the population did not have the capacity to buy the food they needed. The effect of the 'Green Revolution' from the point of view of growth has, therefore, been limited, but its social consequences have been marked.

with one problem, namely, that of production, and protect the interests of one group of persons in the rural community, that is, the surplus-producing land owners. On the other hand, higher prices of foodgrains and higher Government expenditure in the form of subsidies, by generating inflationary pressures, hurt the marginal farmers who have no surplus to sell, as also the village artisans, and above all the landless labourers who lack even the means of production.

Skewed distribution

And yet, very little is heard from the champions of the rural community about the need for land reforms. There is no word of regret that land reform has stagnated over the last four decades after the abolition of Zamindari, and no substantial progress has been made with the help of ceiling legislation to re-distribute land holdings, though this was one of the principal objectives of land reform. Land distribution remains as skewed as ever, giving rise not only to economic inequality and consequent distress and malnutrition at the lower levels, but, supplemented by the unjust social system based on caste, to 'atrocities' on those in the lowest strata of the hierarchy.

Not so green

The 'Green Revolution' certainly helped maintain the rate of growth of foodgrains production after the initial spurt in the growth rate in the post-Independence period based on increased acrea[ge] under cultivation had exhausted itself. To the exte[nt] that it relieved the country of its dependence on fo[od] imports it was certainly welcome, not only for t[he] relief it brought to our balance of payments but f[or] the measure of self-reliance it involved in respect [of] an essential commodity. The self-sufficiency that t[he] 'Green Revolution' brought about, however, w[as] based on gross inequality of income distribution. T[he] country became self-sufficient in foodgrains n[ot] because the nutritional needs of the people we[re] satisfied but because a substantial proportion of t[he] population did not have the capacity to buy the fo[od] they needed. There have been other criticisms of t[he] 'Green Revolution' from the point of view of s[oil] exhaustion. In any case, the resource-intensi[ve] and the infrastructural facilities in respect [of] irrigation which its techniques required prevent[ed] its spread to other areas which were not so w[ell] endowed. The effect of the 'Green Revolution' fro[m] the point of view of growth has, therefore, be[en] limited, but its social consequences have be[en] marked. A body of capitalist landowners has be[en] created and inequality of land distribution h[as] increased, further marginalising the rural poor. Th[e] increased disparity has reflected itself on the decisio[n] marking mechanism of the State, influencing it futh[er] in favour of the former.

Rural development which has the effect [of] increasing income disparities, even though by [a] process of trickling down it improves somewhat t[he] standard of living of the poor, has dangero[us] potentials. The discontent caused thereby, and by t[he] lack of social security which often accompani[es] income disparities, frequently manifests itself [in]

Rural development which has the effect [of] increasing income disparities, even though [by] a process of trickling down it improv[es] somewhat the standard of living of the poo[r] has dangerous potentials. The disconte[nt] caused thereby, and by the lack of soci[al] security which often accompanies inco[me] disparities, frequently manifests itself [in] undesirable channels such as religio[us] fundamentalism, regional chauvinism a[nd] even secessionism.

undesirable channels such as religio[us] fundamentalism, regional chauvinism and ev[en] secessionism. Punjab is an instance in point wh[ere] apparent prosperity has been accompanied [by] religious fundamentalism and secessionism. In [a] lesser measure the Bodo movement of Assam, t[he] Jharkhand movement of East India and the m[ore] militant United Liberation Front of Assam owe th[eir] origin to economic discontent.

More than two decades ago, Dr Gunnar Myr[dal] referring to conditions in the rural areas of South A[sia] (of which India forms the bulk) had said:

"The South Asian village is like a complex molecule among whose parts extreme tensions have been built up. Although the tensions criss-cross in a manner that maintains equilibrium, it is conceivable that they might reorganise in a way that would explode the molecule. This probably will not happen spontaneously, but as a result of a forceful onslaught from outside. '(Asian Drama-- Chapter 22, pp 1063-64)

This warning of Dr Myrdal is still relevant. The ›nslaught from outside' may well be provided by the

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lemocratic processes at work, and even by mprovement of the economic condition in the lowest trata of rural society.

In this context, rural development should mean ıot only an increase in the per capita GNP or NNP worked out as an average), but greater equality in its omposition. This would involve greater emphasis m the social services to the poor in matters like ducation, health and family welfare, and it would nclude above all greater equality in asset holding vhich in the rural context would mainly mean land- ıolding.

Crucial significance

It is on this view that land reform assumes crucial ignificance as an essential part of the programme of ural development. The so-called 'anti-poverty neasures' of the recent past may be very necessary to elieve suffering and distress, but there was nothing n them. except for IRDP on a modest scale, which ought to create assets to generate income for the oor on a long term basis. There could be no ılternative to comprehensive land reforms.

After years of stagnation with land reform, ıowever, it is heartening that the present Government ıas successfully piloted a constitutional amendment o place ceiling legislation in the Ninth Schedule of he Constitution. This is undoubtedly a necessary ondition for further progress of land reforms, but t is not a sufficient condition. The vested interests in ural areas,now much stronger than in the mmediate post-Independence period, will ındoubtedly continue to obstruct land reforms. If he present trends continue, vested interests, rural ınd urban, will also continue to divert available resources, government and non-government, to then own benefit in the form of subsidies, tax reduction et al, causing severe constraint of government resources for rural development It will need committed political parties, and committed bureaucracy too, to overcome the obstructions so created.

Area of promise

To conclude, it would be relevant to recall the all-but-forgotten resolution passed by the Indian National Congress at its Nagpur session in 1959 on Co-operative Farming on a voluntary basis. This resolution sponsored by Jawaharlal Nehru is hardly ever mentioned now, even in the midst of all the rhetorical praise heaped on him in the centenary year of his birth and after. And yet, co-operative farming held out promise for rural development with justice even more than land redistribution envisaged by land reforms. With a growing rural population, land re-distribution, if it is not to lead to undue fragmentation must necessarily leave a substantial proportion landless, beyond their homesteads. This landless population can be integrated in the agricultural economy only by a system of co-operative farming.

It is not difficult to conceive of and plan for social welfare programmes in various spheres, such as education, health and family welfare; indeed, a Minimum Needs Programme to cover various aspects of rural life. They are very essential. It is also essential, by a process of decentralisation, to

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associate the rural people in the preparation and implementation of such programmes. If however, such programmes are to be self-sustaining in nature, and not appropriated or mis-appropriated, for their own benefit by the local power centres, they must motivate the people and enlist their willing co-operation, and be based on a measure of economic and social equality. It is to this end that land reform and voluntary co-operative farming must be accorded higher priorities than allocation of investible resources to rural areas, or fixing of appropriate prices for food grains however essential the latter may be. □

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Revamping Panchayati Raj Institutions

K.D. Gangrade

The author traces the evolution of Panchayati Raj Institutions in the country and describes how power to the people degenerated into power to the powerful. In most of the States, the Panchayat structure continues to be the domain of the well-off. Participation of the weaker sections is not guaranteed in the Panchayat. Long years of silence, the author says, has bound them to a state of fear and silence. The writer, an eminent educationist, calls for earnest efforts to ensure that village-based local bodies are made vibrant instruments of service to the communities and not hot-beds of factional fights, power struggle and corruption. He also suggests the right to recall the 'Pradhan' and 'Panchas' if they are found corrupt and inefficient.

INDIA LIVES IN ITS villages. Unless we reconstruct, improve and develop them, India will perish Gandhiji said, "If India is not to perish, we have to begin with lower rung of ladder. If that was rotten, all work done at the top or at the intermediate rungs was bound to ultimately fall. In the approach to rural development, the city village antagonism becomes the over-riding issue-exploiting the villages itself is organised violence." The same feelings have been echoed by Rabindra Nath Tagore when he said that the status of Mother India has been reduced to that of the maid servant, due to draining of resources from villages to cities. Gandhiji maintained that the blood of the villages is the cement with which the edifice of the cities is built. "I want this blood that is today inflating the arteries of the cities to run once again in the blood vessels of the village." His plea was for radical decentralisation and liberation of the villages from exploitation. The village is the fundamental unit for the development of our country and the State, because the root has to be strong for the growth of the tree.

Participatory democracy

It is necessary to shift the centre of power from urban areas to that of rural areas. The Eighth Lok Sabha has changed the balance of power as it has 319 members with a rural background against five members in the first Lok Sabha. The direct participation of people in democracy at grass roots level would change their participation from that of representative democracy to that of participatory democracy. Democratic decentralisation is essentially a political issue. It is about the distribution of power between different levels in the political and administrati hierarchy. It is also the distribution of power betwe different interest groups at each level. The sheer f that all political parties have approved decentralisation by professing undying allegiance the decentralisation of power and services aug well for the National Front Government.

While both decentralisation and democracy the accepted principles in Indian political thoug the programme of introduction of democra decentralisation in 1959 in India owes its origin to report of the study team on community developme

The team recommeded that Government sho divest itself completely of certain duties responsibilities and devolve them to a body which have the entire charge of all development w within its jurisdiction reserving to itself only functions of guidance, supervision and hig planning.

The main aims of Panchayati Raj Institutions ar create institutions at the village, block and dist levels, to provide opportunities for self-express and political representation at these levels, mobilize public support and local resources for development of programmes, and to decentra decision-making and thereby, allow k experience needs and aspirations to have full pla the planning and implementation of developm programme. The team visualised a three-tier struct of local self-government institutions. At the bas the village Panchayat (Village council), at the bl level the Panchyat Samiti (Block Council) and at district level the zila Parishad (District council)

However, all these years the PRIs have been moribund except for a few exceptions (Gujarat, Maharashtra, West Bengal and Karnataka). Reviewing the functioning of these institutions way back in 1977 the Ashoka Mehta Committee found three interesting phases of PRIs (i) the period from 1959 to 1964 was called a period when the grassroot institutions took roots; (ii) the period from 1964 to 1969 which was called a phase of corrosion of these institutions; and (iii) the period from 1969 to 1977 which it called a stage of non-performance. The inertness and inertia afflicting the PRIs had compelled the committee to conclude that the grassroot institutions are the "grass without a root" and "caricature of local government."

In the proposed decentralisation, all safeguards must be taken so that the ideal of "power to the people" does not degenerate into "Power to the powerful".

It is, therefore, essential that in the proposed decentralisation, all safeguards must be taken so that the ideal of "power to the people" does not degenerate into "power to the powerful".

A typical view held by people is: "The Panchayat is made up of eight or ten of the most important families in most of the villages. That's all. Ordinary people don't visit the Panchayat office. Some people don't know what the Panchayat does, but everybody knows that a Pradhan or even a Panch is an important person". The sum and substance of such views is that "power" does not really vest with the "powerless" In most States the Panchayat structure is known to be the domain of the well-off, inasmuch as Panchayati Raj leadership still contains a conspicuous component of leaders with the social label of dominant castes.

To avoid such a situation the Pradhan (head) and the Panchas (members) should be made accountable to the Gram Sabha consisting of all the adult members of the village . Though Gram Sabha is a supreme body, it remains very inactive as very rarely does the Pradhan call a meeting of the Sabha The villages should also have the right to recall the Pradhan and Panchas if they are found corrupt and wanting in their performance. This process would break the nexus and an individual villager will be able to exercise his vote without fear or favour This would also enable the villager to discuss freely and participate fully in the deliberations of the meetings of the Panchayat and the Gram Sabha.

A favourite testimonial used by the promoters of the democratic decentralisation is that "West Bengal has succeeded in transferring power to the people through the Panchayats". But this arrow hits home, because West Bengal has kept a ferocious focus on land reforms since skewed land holding is the classic source of inequality. Today, in India as a whole, 75 per cent of the land-owners own 26 per cent of the land, while in West Bengal 75 per cent own 65 per cent of the land.

In the present socio-economic setting, the participation of the poor people is not guaranteed in the Panchayat. But they stand a better chance of listening, if not speaking, in a Gram Sabha (village assembly of all adults). Long years of silence have bound them to a culture of silence and terminal fear They are camping outside the Panchayat structure and they are too numerous to be overlooked.

Gandhiji said "my conception of Swaraj is not concentration of authority in a few but the acquisition of the capacity in the many to regulate authority "

The realization of the ultimate goal to wipe every tear form every eye will depend on whether men of character are elected to these bodies. B.R. Ambedkar said that if things go wrong that will not be on account of the Constitution but "because main is vile." It is therefore necessary to have a system and develop safeguards which will help to bring men of character, honesty, and integrity to serve on these bodies as servants of people rather than as their masters.

The Panchayat elections perhaps held on a non party basis may help the traditional leadership of the village, with all their vested interests, to be back in power. If the elections are held on a party basis, it will help build up parties but it may not help to cure the ills of muscle power, money power, casteism, and communalism holding sway in these elections

A case study

As we all know the programme of community development in 1952 as a part of the First Five Year Plan was launched with full vigour and with the fond hope that the people would participate actively in their own governance and development. But the political process even in the village is, to a large extent, the process of making, maintaining, and breaking coalitions. The essential concept of coalition is that it is a group of individuals who share at least one goal among themselves and who agree to pool at least some of their resources in pursuit of that shared goal.

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A case study of five successive Panchayat elections during the period from 1959 to 1977 in village Sherpur which is situated near Delhi shows that the community in the sense of a cohesive and united village community hardly exists. Caste, kinship and factions are still parts of the village social organisation and this splits the village into several communities or factional groups. This has given rise to "coalition". The members of higher castes, when they find themselves divided, enter into coalitions with the lower castes to ensure their victory. The

lower castes, in their turn, have been able to politicise themselves to gain the advantage of adult suffrage. They have been successful, in some cases, in gaining their hold over the statutory Panchayats by defeating the candidates of higher castes The mobilisation has enabled them to assert to seek their own self-identity and self-determination rather than continue to depend on others

The higher castes, with the exception of the third election, have been able to retain the leadership in their hands The inability of the higher castes to

Decentralisation is pivotal to the successful execution or re-oriented planning strategies of the Eighth Plan. It is, therefore, necessary that all efforts must be made to see that village-based local bodies do not become instruments of government control and often arenas for local factional struggles and the exercise of power rather than service of the community.

resolve differences among themselves made it possible for a person belonging to the scheduled caste to get elected as the Pradhan of the village in the third election He got elected with the active support from the factional groups of Jats and Brahmins who were opposed to the group of the Pradhan. The victory of this candidate at the polls created a situation unparalleled in the annals of the village. The leadership of the village during this period passed from the hands of the high castes to those of the depressed caste

The village development had followed a zigzag course. The unity of high castes has brought men, material and money as their share of contribution to take advantage of the schemes of community development. In the event of division and rivalries among these castes, such contributions have not been forthcoming. Consequently, the village development programmes have greatly suffered. The accessibility of higher castes to centres of administrative and political power has sufficiently enhanced their ability to manipulate local and external resources. This had enabled the leaders to distribute patronage and other benefits to the individuals and groups owing allegiance to them.

The lower castes do not have such an advantage with the exception that one or two leaders may have an access to political bosses of popular parties. This axis may help them to bring some of the amenties and benefits not only to the lower cates but to others also as the bureaucrats may not like to displease the politicians who matter

The fruits of development are very rarely shared equally by all the members of the village There is no system which can ensure equal distribution of the benefits. The vigilant leaders either belonging to higher or lower castes take all the advantages either for themselves or for the members of their respective groups The struggle for power at the village leve essentially to have control over the panchayat.

In order to avoid monopolisation and concentrati of power in the hands of an individual, at least t office of the Pradhan should not be allowed to slated for election after he has completed two ter consecutively or otherwise. This would ensu dispersal of power at the grassroots level.

Karnataka experien

The experience of functioning of Panchayati Institution in Karnataka indicates that while Panchayat Act provides the legal basis that facilita political decentralisation, this alone has not be sufficient guarantee that the system actu functions in favour of the underprivileged. achieve this objective, empowerment has to co from below What emerges from a study is that wh there is already a strong people's organisat Panchayat bodies are activated much more efficie and the accountability factor is strengthened. Whil is true that the reach of development schemes widened considerably in Karnataka, the strangleh of landlord interests have seen to it that the PRIs h not been able to ensure any real shift in political alone economic interests in the country side reason for this is that, unlike as in Bengal, Panchay in Karnataka have not been involved with land refo

A sound poli

It is a sound policy that the Government consi PRIs as the main instrument of social transforma through which local level planning and guarante of full employment will be made possi Decentralisation is considered pivotal to successful execution or re-oriented plan strategies of the Eighth Plan It is therefore, neces that all efforts must be made to see that village-b local bodies do not become instruments of gov ment control and often arenas for local facti struggles and the exercise of power rather t service of the community

The Prime Minister Shri V.P. Singh in his spee the conference of representatives of PRIs on June has rightly emphasised that the most impo role of PRIs is in their ability to generate suffi power from below so that they can also contro top

Conclus

A close look at panchayat elections in se villages show that there is an intense struggl power among the leaders in the villages. This ten split the caste groups into several and somet hostile factions. These divisive forces have c impact on the development activities in the vil which do not get accomplished because of ap indifference and jealousy of leaders. The sh power is slow to the poor and marginalised vill

Constant vigilance in a face-to-face community would help members of the Gram Sabha to judge the Pradhan and the Panch by their performance and not by their birth into a particular caste.

The quality of participation of villagers in peoples institutions especially in the Gram Sabha at micro-level will depend to what extent the members derive personal satisfaction from it, and what limits it places on his autonomy and rationality. The three most important components which can be distinguished by Leonard Broom and Philip Selznick are: (i) Commitment, the importance to the individual of his membership in the Gram Sabha and his willingness to contribute to it and sacrifice for it; (ii) interpersonal experience, the extent to which the individual's participation is sustained by friendship or sociability and (iii) rationality, the extent to which the individual preserves his capacity to make independent judgements.

In the rural community as would be seen from the following chart, all three elements, over other organisations assume high values. Commitment is high because individual is bound into a network of social relations. Interpersonal experience is high because the community stimulates and builds upon friendship, informal groups, family ties etc. Rationality is high since the community participant must strike a balance among a number of goals and values. He cannot be single minded, and participation is not segmented.

Element of participation in different types of organisations

Type of Organisation	*Commitment*	*Inter-personal Experience*	*Rationality*
Interest group	Low	Low	Low
Bureaucratic Organisation	High	Low	Medium Low
Mass Organisation	High	Low	Low
Community	High	High	High

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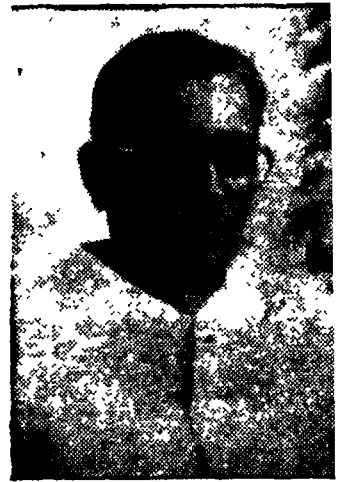
पटवा फार्मूला स्वीकृत

लाखों किसानों को 493 करोड़ रु. की ऋणमुक्ति

मध्यप्रदेश सरकार के इस ऐतिहासिक निर्णय द्वारा 20 लाख किसान परिवारों अर्थात एक करोड़ से अधिक किसान आबादी को 493 करोड़ रु. के ऋणों से मुक्ति मिली है।मध्यप्रदेश सरकार ने अपनी वचनबद्धता को सिद्ध करके बता दिया है कि उसके वायदे कोरे वायदे नहीं ।

सरकार ने अपनी दृढ़ इच्छा शक्ति से इस असंभव काम को संभव कर दिखाया है ।

सरकार ने नियति के उस दुष्चक्र को तोड़ने का प्रयास किया है जिसमें हमारा अन्नदाता किसान कर्ज में जन्म लेने, कर्ज में जीने और विरासत में कर्ज छोड़ जाने को मजबूर था ।

किसान की भलाई के लिए संकल्पित मध्यप्रदेश सरकार ने ऋणमुक्ति का निर्णय लागू कर किसान से मांगपत्र छुड़वाकर उसके हाथों में अधिकार-पत्र सौंपा है । इतिहास में पहली बार किसान को अपने अधिकार मिले हैं ।

खेती अब घाटे के बजाय मुनाफे का धंधा बनेगा ।

यह शुरुआत है प्रदेश की तीन चौथाई ग्रामीण आबादी की खुशहाली की ।

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Sobhagya-90

People's participation in rural development

Kamta Prasad

Decrying the existing stereotyped and strait-jacket models of rural development, the author suggests the one which gives pivotal role to the village and a supportive role to the government. When people at the grass root level plan for themselves, they are generally best informed about their available inputs, shortcomings and cost effective techniques. There will be better accountability and more equitable regional development. The author, a noted economist, feels more and more involvement of the people will rejuvenate the sagging spirit of self help. Elaborating the various methods of popular participation, he lays special emphasis on effective involvement of the weakest. Better interaction between people and the administration, organising the poorer sections and providing adequate representation are some areas needing closer attention. Making a fervent plea not to brook delay and make a beginning at least on an experimental basis, he welcomes the Government's move to strengthen the Panchayati Raj institutions and the proposal to give the Gram Sabha its due.

THE APPROACH TO RURAL development followed so far has been essentially bureaucratic rather than participatory. Rural development plans have been prepared at the national and State headquarters and passed on to local level offices of the government for execution. Involvement of the local people has been rather limited. Consequently, there has often been a mismatch between what the people wanted and what they got from the Government.

Studies of India's Planning experience have thrown up numerous cases of planners giving uniform or stereotype schemes which are not suited to local needs or resources in several areas According to one study, a large number of lower caste marginal farmers were provided with a superior breed of buffaloes in a Rajasthan village, but they could not maintain these animals as they failed to produce the required dry and green fodder Some of them, therefore, sold these animals to the higher caste big farmers. In other cases, loans and subsidies were given to some farmers for digging open wells and bore wells but electricity could not be provided for the pump sets. Whether it is IRDP, DPAP or any other programme, the dead uniformity which has occurred in the name of national planning has proved highly unproductive. As Sardar Tarlok Singh has pointed out, the interest at the higher leve has been increasingly to get at quick numerical result which are easy to report, add up and publicise in on form or another with too little attention to the tru impact on the conditions of the people.

The reliability of data and information procure through Government machinery has been also quit doubtful. There have been numerous examples o inefficiency arising out of the non-availability or un reliability of data. These deficiencies are reflecte more particularly at the micro levels since the smalle the area, the less the scope of the applicability of th law of large numbers and the smaller the chances o cancelling out of errors.

Intimate knowledg

Involvement of the local people in schemes of rural development is expected to result in better plannin and decision-making because the local people have a better awareness of their needs and preference and fuller information on the conditions and possiblities of their area. The local communities, with a more intimate knowledge of the inter dependence of activities at the mirco level, would b in a better position to develop integrat programmes which would avoid duplication and

produce the maximum impact with minimum cost. Moreover, implementation may also be better as a result of more realistic planning and greater involvement of the people. Further, this may reduce delay and ensure easy accountability. It is also expected that decentralisation will lead to a more equitable regional development. Every area will receive some minimum attention.

Another advantage of involving local people in planning for rural development is that it helps to raise the level of their consciousness of their rights and responsibilities, which, in turn tends to facilitate social change. Involvement of the people in the planning process may also provide them with an opportunity for advancement on the basis of self-help and mutual co-operation, thus augmenting developmental effort. Over the years, a tendency has developed to depend on the Government for every developmental activities. Works which used to be undertaken by the village communities themselves are now expected to be done by Government Departments People seem to have lost all initiative and enterprise. However, if they are given the overall responsibility for planning and deciding their own development, then they may take up some works with their own efforts and resources. Several such activities can be identified, e.g. the construction of compost pits in households, maintenance of village roads,development of village grain gollas, adult education programmes, elementary hygiene and so on.

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Questions

Several questions, however, do arise with regard to participation of people in rural development. At what level and stage in the planning process can local public opinion be used in a most effective manner? How far should one depend on such opinion? How can it be ensured that people's involvement does not result in the plan becoming simply a list of demands from a narrow local perspective? What degree of involvement is desirable and feasible? How can the opinion of the people on competing objectives and schemes be ascertained? Who should be consulted, the people themselves or their representative institutions such as Panchayats or class organisations or the target groups? Since the public is not a homogeneous entity but comprises heterogeneous groups with conflicting interest, what mechanism of conflict resolution should be evolved?

Most of the answers to these questions would vary from state to state depending upon the social, political and administrative set up in each. Sometimes, there may be variations even within a State. Direct involvement of the people as a whole is possible only at the level of villages where all the adults can assemble together for discussion. At higher levels, such as a block or a district discussion can be held only through their representatives.

In the United States, there is a built-in system of getting public opinion on any project. The engineers, after having worked out a few alternatives of any scheme, request the concerned public to come for a meeting where their views and comments on the proposed project are obtained. These are taken into account before finalising the project. Such a system, however, does not prevail in India as well as most of the developing countries.

People's participation is possible at several stages in the planning process. There can hardly be a better agency than the people themselves for the collection of data and information. This can be done by the village as a whole or by groups in their meetings and recorded by village official or by the educated among the villagers themselves. Village meetings provide a good forum for verification of data and information. Information collected through this method is expected to be more accurate than that collected by paid employees appointed either by the government or by research institutions. It is however, not safe to rely exclusively on the people for data collection because their personal or group bias are likely to creep in. Some test checks by qualified statisticians would be needed and appropriate corrections made.

Involvement of the local people in schemes of rural development is expected to result in better planning and decision-making because the local people have a better awareness of their needs and preferences and fuller information on the conditions and possibilites of their areas. The local communities, with a more intimate knowledge of the inter-dependence of activities at the micro level, would be in a better position to develop integrated programmes which would avoid a duplication and produce the maximum impact with minimum cost.

Apart from the collection of data and information, there is scope for involvement of the people in other aspects of planning also. The views of the public would be specially useful at the stage of formulation of objectives and laying down of priorities of the plan, as this would ensure that the objectives and priorities are related to the felt needs and problems. The people may be ignorant or unaware of the different choices available for developmental programmes. Their participation in planning can be more effective

alternatives with necessary details are also presented before them by some planning team consisting of experts, including local level experts Widespread publicity and extension of education may be necessary to enlighten the public about the problems of local development, types of projects and nature of benefits available. Attempts should be made to make the people aware of the possibilities as well as the feasibility of raising their standard of living by making use of available resources and technologies.The people should also be informed of the social and institutional factors which might be responsible for sub-optimal production. This may prompt them to devise measures for overcoming the constraints and bringing about social change. The village meetings on planning, if held frequently, would provide a good forum for such education and awareness. This can be supplemented by the efforts of the planning team at the block/district levels

People seem to have lost all initiative and enterprise. However, if they are given the overall responsibility for planning and deciding their own development, then they may take up some works with their own efforts and resources.

Public participation by way of discussions in open assemblies in villages may be eqaully useful in identification, formulation, selection and location of schemes of local importance like thoses relating to provision of drinking water, health centre, school building, etc Controversies which usually arise in such cases are expected to be better resolved at village level meetings

Monitoring

Another area in which public participation may be very useful is that of monitoring and evaluation of projects/programmes. "This will help to identify not only how many, but also who benefits from a particular investment and whether any leakages, corruption has been noticed. The information provided by the people on the progress of a project would also help in identifying the problems and constraints in implementation "

Thus people's participation in planning would be beneficial at every stage of planning such as setting of goals, determination of strategy and priorities, formulation of schemes, collection of data and information, monitoring and evaluation These observations are, of course, relevant only to village level schemes

Meaningful

The recommendations of the public may have either advisory or mandatory status. People's participation becomes more meaningful and effective when the people become the real planners at the village level In this case, the role of the government and its planning team would be to facilitate the performance of the people's function more efficiently by providing funds, advice or any other technical inputs and by creating facilities for the success of the plan formulated by the people. In other words, the people would plan and the government would play a supportive role. However, it would be better if the comments of the planning team are obtained before considering schemes or plan for approval. This would ensure that public involvement does not result in the plan becoming a mere list of demands from a narrow local perspective. It would also keep the size of the plan within the limits of available funds and resources

The public is, of course, not a homogeneous entity. It comprised groups that often have conflicting interests: some groups are more powerful and articulate and some less so. The weak and the underprivileged comprise the majority. They are afraid to speak out before the more powerful minority and hence may agree with them even though it may be to their own detriment. Or they may withdraw from the village meetings. This is a major problem The question, therefore, arises as to how to enable the deprived majority to have their existence properly felt in the combined village meeting.

Mechanism

One way is to have prior discussions and meetings separately with the deprived groups such as the landless, the Scheduled Castes, the Scheduled Tribes, etc. The planning team may be asked to obtain directly the opinion of the concerned members of the public such as the target group or all those who are likely to be affected by a scheme. It should record the views and examine them in keeping with the objectives and priorities of planning, availability of resources, extent of benefits derived, etc. and place them along with its comments before the general body of the village. Much, of course, would depend on the ability of the planning team to do its homework properly

In the United States, there is a built-in system of getting public opinion on any project. The engineers, after having worked out a few alternatives of any scheme, request the concerned public to come for a meeting where their views and comments on the proposed project are obtained.

Another and more efficient way is to help the rural poor to organise themselves. Frequent village assemblies may induce or enthuse them to do so. Yet another method is to provide for adequate representation of the weaker sections in the formal decision making bodies at the local levels. This is what is proposed to be attempted in the forthcoming legislation on Panchayati Raj.

Novel experiment

People's participation in rural development as discussed above is yet to be attempted in our country. Some experiments in this direction, however, have been made. The Government of West Bengal has made an experiment in village based district planning in Midnapur district since 1985. The exercise consists of preparation of a village plan by the people of the village themselves, followed by Gram Panchayat plans with village plans as the main ingredient, Panchayat Samiti plans based on the Gram Panchayat plans and finally district plans on the basis of Panchayat Samiti plans. An important purpose behind this is to associate the village community as a whole in the planning process so as to arouse their awareness and to create a self-reliant organisation

The views of the public would be specially useful at the stage of formulation of objectives and laying down of priorities of the plan, as this would ensure that the objectives and priorities are related to the felt needs and problems. Their participation in planning can be more effective if alternatives with necessary details are also presented before them by some planning team...."

Several experiments in involving people in planning for rural development have been made in an isolated manner by a few voluntary agencies. What is now needed is that every State Government should immediately take up at least the first step in the direction of people's participation in rural development. This could involve an examination of the available experience and setting up of an institutional mechanism on an experimental basis in a few blocks in the State. In due course, this may be extended to cover the entire state.

The present Government at the Centre has decided to strengthen the Panchayati Raj institutions. It has come forward with the proposal to amend the Constitution for this purpose. The proposal was discussed and approved in the conference of Chief Ministers held in New Delhi on 11th and 12th June, 1990. The proposal envisages establishment of the institution of Gram Sabha. On it will be represented all persons both men and women whose names figure in electoral roll within the area of the Panchayat. The Gram Sabha will exercise those powers in relation to the Panchayats at the village level which the Legislative Assemblies do at the state level. This is a very significant improvement and if carried through, will pave the way for active involvement of people in rural development □

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Giant Movers
Giant Strides

Exodus to cities and quality of life

Prof. K. Srinivasan

In this incisive analysis, the author has sought to explode the myth that exodus to cities from rural areas is the main cause of the fall in the standard of living there. The fear of the city-bred aided by the publicity blitz is not borne out by facts. However, the concomitant problems should not be overlooked but tackled with broader perspective at national level. Citing case studies of related issues from abroad, the author, a renowned demographer, cautions against alarmist views and cut and dried solutions. Marking a searching study, he focuses on the composition of migrants, requirement of the ground realities and significance of the issue vis-a-vis the state and the country as a whole. Pitted against the hapless existence in the country side, the situation is not that bad in cities, propped up as it is by immediate supportive facilities, The real issue, the author says, has got mixed up with changing perceptions of better living in cities and rising expectations from the State. This aspect requires a broad appreciation.

IN RECENT YEARS, THERE has been a growing awarencess and concern about the deteriorating quality of life in the metropolitan cities in India. These have found expressions in the various writings and speeches of politicians, city planners, journalists, environmentalists and demographers on the problems of urban life. For example, during March 30 to April 6 this year, a series of six articles, under the caption "Wake up Bombay" !, has been published in a national daily by specialist drawn from different disciplines, highlighting the magnitude of Bombay's problems viz: unabated population growth, rising levels of pollution, deterioration of civic amenities, sharp rise in the crime and accident rates, skyrocketting of the prices of land and housing, increase in the proportion of population living in slums and pavements, and the extent to which these problems are confounded by increasing inflow of migrants into the cities. In these six articles the various problems have been identified in fairly great detail and quantified and certain corrective measures including such drastic actions on the political and administrative fronts, as stopping further migration into the city from other parts of the country and declaring large cities as separate states or Union Territories have been advanced. The causes of almost all these problems have been attributed to a large measure to the enormous inflow of migrant-population into the cities from rural ar The rural migrants are considered to be without urban values or ways of life poor, unheal illiterate and thereby contributing to the deteriora in the quality of city life.

Exodus to cities from rural areas has b considered as the primary cause of the deteriora in the quality of city life. In this article, I wis present arguments that this is not necessarily case, that deterioration in the quality of life in ur population is more in the changing percepti attitudes and values of the people rather tha conventional statistical indicators of quality of that in-migration is a necessary ingredient of economic and social structure of cities. deterioration in certain aspects of life that are usu considered to be indicative of the quality of li modern terms are not mainly attributable to the l volume of in-migrants to the cities. Further, pointed out that the problems of metropolitan c cannot be resolved by the cities themselves; ra they are indicative of problems of the country whole and should be tackled at national level ra than purely at the city level.

Population and grow

Let us consider the twelve cities which ha population of million or more in the 1981 Censu

ndia, viz., Calcutta, Greater Bombay, Madras, Delhi, langalore, Ahmedabad, Hyderabad, Pune, Nagpur, ucknow, Jaipur and Kanpur. Their total population n 1981 was 42.1 million or 6.1% of the nation's opulation. Two decades earlier, in 1961, these 12 ities had a total population of 21.6 million or 4.9% of he total population of the country. Thus the opulation of the large cities has nearly doubled in 20 ears with an average annual growth rate exponential) of 3.35% per year. During the same eriod the growth rate for the country, as a whole, vas 2.22% per year. Thus the population of these large ities was increasing by an additional growth rate of .13% per year (assuming that the natural increase of

Though the volume of migration to mega cities in India is high compared to trends prior o 1951, they are not alarmingly high ompared to the levels of migration into the nega cities that are currently taking place or hat have been experienced in the recent past n other developing countries.

he population of the cities is almost the same as for he country as a whole, which is empirically valid) which is due to net in-migration of population into hese cities from other areas.

Table I presents data on the population of these welve mega cities in 1961, 1971 and 1981 and trends n their population growth rates. The maximum opulation growth rate among these cities was found n Bangalore which grew at 5.68% per year during the lecade 1971-81, and in Madras which grew at 4.89% er year during the decade 1961-71. The population of he two largest metropolises, namely Calcutta and Greater Bombay were increasing at 2.16% and 3.44% luring this 20-year period. In both these cities the ontribution of in-migrants to the growth rate has onsiderably slowed down during the past few lecades. However, in terms of absolute numbers Greater Bombay and Delhi continue to be attracted with the largest number of in-migrants per year.

Though the volume of migration to mega cities in ndia is high compared to trends prior to 1951, they re not alarmingly high compared to the levels of n migration into the mega cities that are currently aking place or that have been experienced in the ecent past in other developing countries. Table II rovides data on the recent estimates and projections upto the year 2000, of population size and growth rates of 16 selected mega cities of population of 4 million or nore in 1985, in developing countries of Asia. Four of hose cities are from India. From this table it can be een that during the period 1980-85 the City of Dacca n Bangladesh was growing at 7.37% per year, Teheran in Iran at 5.23%, Pusan in Korea at 5.09%, Bangkok in Thailand at 4.21%, Seoul at 3.91% and akarta of Indonesia at 3.86%, all higher than the growth rates of Calcutta, Bombay and Madras during 971-81. Only the large cities in China namely Shanghai, Beijing, Tianjin and Shenyong, have been growing at low rates because of the stringent laws imposed by the Communist government in China preventing movement of people from rural to the urban areas. Thus, though the volume of in-migration into mega cities in India is high compared to their earlier levels, they are of comparable order of magnitude and if at all different, lower than the migration rates to the cities in other democratically governed developing countries. Correlation of the levels of the migration into the cities with their economic developments over time observed in Thailand, Manila, Korea and Indonesia, indicate that higher rates of economic development assessed in terms of increase in per capita income has always accompanied higher rates of migration of population into the cities. Thus there is no justification at all to consider migration to cities in India as something alarming and unique to the Indian situation, warranting drastic measures to curb migration. A graph depicting the trends in the population growth in the 16 mega cities of Asia illustrates the trends for the Indian cities compared to other cities.

If we consider urbanization, as a whole, and not just the population living in mega cities, the process has been relatively slower in India than in most of the large developing countries. In 1990, the percentage of population living in urban areas in India is estimated at 28.0 per cent, compared to 33.9 per cent in all the developing countries and 72.7 per cent in the developed countries. According to latest U.N. projections the proportion of urban population is

Correlation of the levels of the migration into the cities with their economic developments over time observed in Thailand, Manila, Korea and Indonesia, indicate that higher rates of economic development assessed in terms of increase in per capita income has always accompanied higher rates of migration of population into the cities. Thus there is no justification at all to consider migration to cities in India as something alarming and unique to the Indian situation, warranting drastic measures to curb migration.

projected to increase by the year 2000 to 34.2 per cent in India compared to 39.5 per cent in developing countries and to 74.8 per cent in the developed countries. Rapid urbanization until the proportion of urban population reaches around 60 to 70 per cent, seems to be an essential ingredient of the development process. We have to be prepared for it and plan for the same, rather than attempt to curb it.

Socio-economic factors

People migrate to cities for various economic and social reasons. In India, from the Census data it has been observed that the primary cause of migration of

males to the cities is 'seeking employment' and of 'females' due to marriage accompanying their husbands employed in cities Thus employment and marriage seem to be the underlying forces of migration of men and women into the cities and they are legitimate and humane reasons that are to be respected in any civilized country The migrants come to the mega cities not only from rural areas but also from other urban centres of the country Table 3 provides data on the volume of migration from rural areas and urban areas to the 12 metropolitan cities, separately for males and females, as assessed the place of birth data in the 1981 Census. In G Bombay about 4.1 million persons or almost the city population have declared their place of as outside Bombay About 68% of the migrant from rural areas and 32% from other urban are the other hand, in Calcutta, only about 2 million (the city's population) have reported their pla birth as outside Calcutta. Among these migrant million (or 68%) were from rural areas and million (32%) were from urban areas. In the

Table 1

Population of mega cities of India, 1961, 1971 & 1981 and Trends in Annual Growth Rates

	Mega City	*Population in '000s*			*Average Annual Growth Rate (exponential) in %*		
		1961	*1971*	*1981*	*1961-71*	*1971-81*	*1961-81*
1	Ahmedabad	1206	1752	2548	3 73	3 78	3 76
2	Bangalore	1207	1664	2922	3 21	5 68	4 44
3	Greater Bombay	4152	5971	8243	3 63	3 25	3 44
4	Calcutta	5984	7420	9194	2 15	2 16	2 16
5	Delhi	2359	3647	5729	4 36	4 55	4 46
6	Hyderabad	1249	1796	2546	3 63	3 52	3 58
7	Jaipur	410	637	1015	4 41	4 70	4 55
8	Kanpur	971	1275	1639	2 72	2 53	2 63
9	Lucknow	656	814	1008	2 16	2 16	2 16
10	Madras	1944	3170	4289	4 89	3 05	3 97
11	Nagpur	690	930	1302	2 98	3 39	3 19
12	Pune	791	1135	1686	3 61	3 99	3 81
	Combined	21619	30211	42121	3 25	3 35	3 35

Source: Census of India, 1981, General Population Tables, Series-I Part II A (ii) Office of the Registrar General and Census Commissioner, Government of India New Delhi 1988

Table 2

Recent estimates and projections upto year 2000 of population size and growth rates of sixteen selected mega cities (4 million plus population in 1985) in developing countries of Asia

	Population Size in Million					*Average Annual Growths (Estimated or Projected) Exponential-In %*			
City	*1980*	*1985*	*1990*	*1995*	*2000*	*1980-85*	*1985-90*	*1990-95*	*1995-2000*
India									
Calcutta	9 00	10 29	11 83	13 71	15 94	2 67	2 79	2 95	3 01
Greater Bombay	8 05	9 47	11 13	13 12	15 43	3 23	3 14	3 29	3 23
Delhi	5 54	6 95	8 62	10 57	12 77	4 53	4 29	4 09	3 78
Madras	4 19	4 87	5 69	6 68	7 85	3 02	3 10	3 21	3.23
Outside India									
Shanghai (China)	11 80	12 06	12 55	13 39	14 69	0 43	0 79	1 30	1 85
Seoul (Korea)	8 28	10 07	11 33	12 25	12 97	3 91	2 36	1 56	1 15
Beijing (China)	9 10	9 33	9 74	10 43	11 47	0 50	0 86	1 36	1 90
Tianjin (China)	7 68	7 96	8 38	9 02	9 96	0 71	1 02	1 48	1 97
Jakarta (Indonesia)	6 42	7 79	9 42	11 26	13 23	3 86	3 80	3 57	3 23
Teheran (Iran)	5 55	7 21	9 21	11 27	13 73	5 23	4 90	4 05	3 94
Manila (Philippines)	5 96	7 09	8 40	9 88	11 48	3 46	3 39	3 25	2 99
Karachi (Pakistan)	4 95	6 16	7 67	9 45	11 57	4 39	4 37	4 18	4 06
Bangkok (Thailand)	4 75	5 86	7 16	8 63	10 26	4.21	4 00	3.74	3 46
Dacca (Bangladesh)	3 29	4 76	6 40	8 54	11 26	7 37	5 92	5 76	5 54
Shenyong (China)	3.82	4 11	4 46	4 91	5 50	1 48	1 63	1 92	2.25
Pusan (Korea)	3.12	4 02	4 75	5.34	5.82	5.09	3 33	2.33	1.72

Sources: **United Nations "Prospects of World Urbanization, 1988, Population Studies No 112, New York 1989.**

cities as a whole the rural migrants had a higher (59%) proportion of males than the urban migrants (52%) In the metropolitan cities of Madras, Lucknow, Jaipur, Delhi and Bangalore, the number of migrants from other urban centres is higher than from rural areas (as determined from the place of birth) These data indicate that it is not always the rural population with all the so-called rural characteristics that migrate to the metropolitan cities, but that substantial proportions of the migrants to mega cities are drawn from other smaller urban centres in the country.

According to latest U.N. projections the proportion of urban population is projected to increase by the year 2000 to 34.2 per cent in India compared to 39.5 per cent in developing countries and to 74.8 per cent in the developed countries. Rapid urbanization until the proportion of urban population reaches around 60 to 70 per cent seems to be an essential ingredient of the development process. We have to be prepared for it and plan for the same, rather than attempt to curb it.

Educational status

It is generally believed that the migrants to cities are drawn from the lowest socio-economic strata of the rural population of the country, and as such are responsible for pulling down the overall educational, income and health levels of city population This is not found to be empirically validated Table IV provides data on the level of education of migrants who have moved to metropolitan cities, showing 'seeking employment' as the main reason for their moving to the cities It has to be stated here that for most of the adult migrants above age 18, 'seeking employment' has been the primary motivating cause for moving into the cities The distribution by educational levels of the people, given in the Table indicates that the percentage in the lowest level (I) or the illiterate category varied from the highest of 39 6% observed in Calcutta to the lowest of 12 0% in Madras These figures have to be compared against the levels of illiteracy in population aged 15+ in India as a whole and in the states in which these cities are located. In the country in 1981, the illiteracy rate among those aged 15+ was 66% as per the Census In West Bengal the illiteracy rate among those aged 15+ in 1981 was 59.5% compared to 39 6% among the migrants in Calcutta city The illiteracy level in Tamilnadu as a whole in 1981 was 57 1% compared to only 12% among the migrants in Madras City, and similarly in Karnataka State as a whole it was 64.1% compared to only 18.5% among the migrants in Bangalore city. This is found true for all the 12 metropolitan cities, that the migrants have significantly higher level of literacy and educational attainment than the population as a whole. There appears to be a significantly greater attraction to the metropolitan cities of persons more literate and higher educated from the rural areas. The argument that only illiterates from among rural folks flock to the metropolitan cities in search of employment is not borne out from the empirical facts. Table 4 also indicates that the percentage of graduates and post-graduates and technical diploma holders are higher among the migrants into the metropolitan cities than compared to the non-migtrant population either in rural areas or in other urban areas

Occupational distribution

It is usually claimed that most of the migrants flock to the city mainly in search of menial jobs. Table V throws light on the occupational distribution of the life-time migrants in the 12 metropolitan cities It is true that a high proportion of the workers from among the migrants are engaged in the category of 'production and related workers, transport equipment operators and labourers' The highest proportion in this category is seen in Ahemdabad with 57 6% of the life-time migrants employed in this category and the lowest is observed in Lucknow with 27.5% in this category. However the Table also reveals that the percentage of migrants employed in professional, technical and related activities is also quite high ranging from 17 8% in Hyderabad and 15 7% in Nagpur to 4 7% in Calcutta Thus a substantially high proportion of the life-time migrants in the metropolitan cities are engaged in professional, executive, managerial, sales and service sectors and contribute significantly to the economic development of the cities

In the metropolitan cities of Madras, Lucknow, Jaipur, Delhi and Bangalore, the numbers of migrants from other urban centres are higher than from rural areas (as determined from the place of birth). These data indicate that it is not always the rural population with all the so-called rural characteristics that migrate to the metropolitan cities, but that substantial proportions of the migrants to mega cities are drawn from other smaller urban centres in the country.

The economic structure of the metropolitan cities is such that all the sectors of the economy are very closely inter-connected In all sectors such as industries, construction of housing complexes, laying of roads, water and sewerage pipes, railway lines, etc , there is an enormous and continuous demand for skilled and unskilled labourers. This demand is met largely by the migrant labourers from rural and other urban areas and they have come to the metropolitan cities for almost permanent stay The tertiary unorganized sector which provides the services to the people such as hawkers, vendors, dubbawalas, house-maids, cart-pullers etc. are essential for the survival of the economy in the metropolitan cities; without them the city life will

come to a grinding halt. Thus there is a need to take care of them and protect their interests rather than blocking their arrivals and attributing all the evils of metropolitan life to the in-migrants. It is true that the pollution levels, crime and accident rates, population living in pavements and slums are already high and increasing but the solutions to these problems have to be found in the overall context of development of the country as a whole and not in isolation only at the city level.

Table 3

Volume of Migrants by sex to mega cities from rural/urban areas of India, 1981

Mega City	*Number of Migrants to Mega Cities*					
	From Rural			*From Urban*		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*
Ahmedabad	315577	266395	581972	174185	185347	359532
Bangalore	248693	237459	486152	293311	276189	569500
Greater Bombay	1764446	1036876	2801322	715032	612154	1327186
Calcutta	845516	505146	1350662	356647	279627	636274
Delhi	677934	452742	1130676	693070	623130	13162000
Hyderabad	132548	124775	257323	124806	120517	245323
Jaipur	79035	67778	146813	79833	83667	163500
Kanpur	153421	120322	273743	92596	92898	185494
Lucknow	69110	53874	122984	70747	71311	142058
Madras	292852	268928	561780	433444	432573	876017
Nagpur	133058	130381	263439	85901	95980	181881
Pune	226467	201450	427917	187241	182546	369787
Total	4938657	3466126	8404783	3316813	3055939	6372752

Source: Census of India, 1981, Migration Tables, Series-I. Part-V A & B (IV), Office of the Registrar General and Census Commissioner Government of India, New Delhi, 1988

Table 4

Percentage distribution of migrants who reported 'employment' as the reason for their move to twelve mega cities by level of education, 1981

Mega City	*Level of Education*						
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*Total*
Ahmedabad	22 2	41 7	24 4	1 2	8 4	2.1	100 0 (227006)
Bangalore	18.5	31 3	30 5	3 9	11 8	4 0	100 00 (282176)
Greater Bombay	24.8	43 7	24 0	0 8	5 2	1 5	100 (282176)
Calcutta	39.6	40 4	13 3	0 4	5 4	0 9	100 00 ([illegible])
Delhi	31 7	31 8	22 6	1 0	10 8	2 1	100.0 (698509)
Hyderabad	16 8	20 7	28 6	5 3	22 0	6 6	100 0 (110526)
Jaipur	22 3	31 7	25 0	0 2	18 3	2 5	100 0 (82367)
Kanpur	33 5	30 3	24 5	0 5	9 7	1 5	100 0 (117856)
Lucknow	23 9	24 0	25 6	2 2	21 3	3 0	100 ([illegible])
Madras	12.0	36.7	34.6	3.0	10.7	3.0	100.0 ([illegible])
Nagpur	13 5	36 8	28.8	2 9	13.7	4 3	100.0 (68652)
Pune	19.6	33 6	29 2	5 6	8.0	4 0	100.0 ([illegible])

Source: Census of India, 1981, Migration Tables, Series-I, Part V A&B*(vii) Office of the Registrar General and Census Commissioner, Government of India, New Delhi, 1988.

Note: (1) Illiterate (2) Literate but below matric (3) Matric but below graduate (4) Technical diploma (5) Graduate and Post-graduate (6) Technical degree.

Figures in brackets indicate the absolute number of migrants.

Table 5

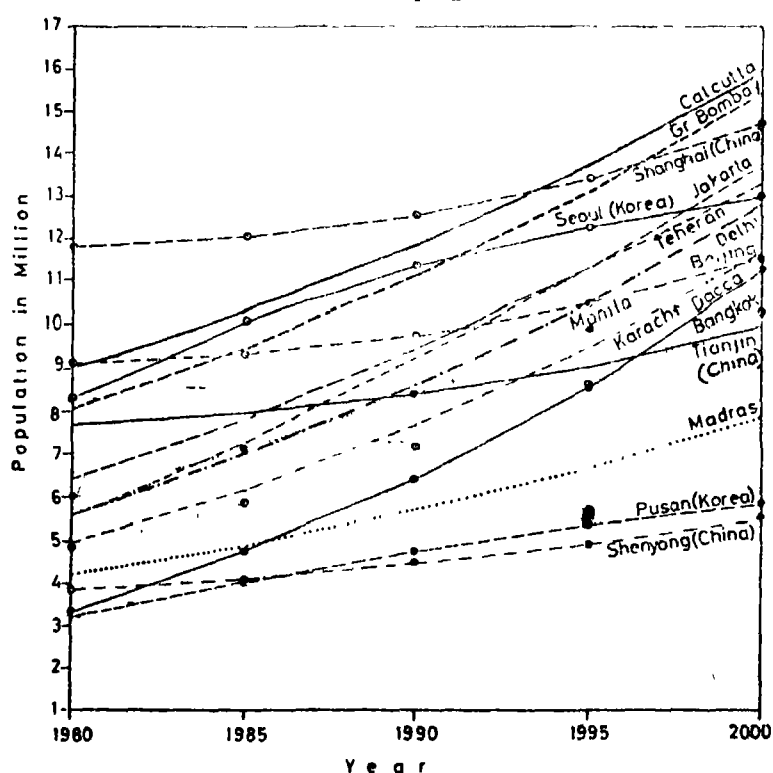
Percentage Distribution of Migrants who Reported 'Employment' as the Reason for their move to twelve mega cities by Occupational Cataegory, 1981.

	Occupational Category								
Mega City	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*Total*
Ahmedabad	6.7	3.9	10.6	11.0	8.0	0.7	57.6	1.5	100.00 (122006)
Bangalore	11.4	7.7	15.2	8.8	11.1	0.8	40.1	4.9	100.00 (282176)
Greater Bombay	5.2	3.6	10.6	12.0	12.2	1.1	51.8	3.3	100.00 (1457938)
Calcutta	4.7	4.7	8.1	9.7	15.1	1.0	55.5	1.2	100.00 (694697)
Delhi	8.1	5.3	13.1	11.0	13.2	1.1	47.0	1.2	100.00 (698509)
Hyderabad	17.8	8.0	20.6	6.6	8.6	0.7	33.4	4.3	100.00 (110526)
Jaipur	12.6	5.3	18.8	10.6	12.9	0.7	36.3	2.8	100.00 (82367)
Kanpur	6.9	2.9	11.5	10.0	11.6	1.0	48.3	7.8	100.00 (117856)
Lucknow	12.5	4.2	23.1	6.7	11.2	1.0	27.5	13.8	100.00 (61050)
Madras	10.8	8.3	17.8	13.0	10.2	0.9	38.7	0.3	100.00 (353505)
Nagpur	15.7	3.7	24.2	5.6	10.1	1.3	37.9	1.5	100.00 (68652)
Pune	10.1	5.1	13.9	5.6	10.8	1.3	50.7	2.3	100.00 (164037)

Source: Refer Table 4

Figures in brackets indicate absolute number of migrants.

Note : (1) Professional technical and related workers (2) Administrative, Executive and managerial workers (3) Clerical and related workers (4) Sales workers (5) Service workers (6) Farmers, Fishermen, Hunters, Loggers, etc (7) Production (8) Workers not classified by occupation

Recent Estimates and Projections upto Year 2000 of Population Size of Sixteen Selected MEGA Cities in Developing Countries of Asia

Higher mortality

In terms of indicators generally considered by the demographers on the quality of life viz., infant mortality rate, expectation of life at birth and female elteracy levels, the quality of life in any metropolitan city is better than in the rural areas, surrounding the city, or the rural areas, of the state. For example, the overall female literacy rate for Bombay in 1981 is 61% compared to 35% in Maharashtra State as a whole The infant mortality rate in the rural and urban areas

...the migrants have significantly higher level of literacy and educational attainment than the population as a whole. There appears to be a significantly greater attraction to the metropolitan cities of persons more literate and higher educated from the rural areas. The argument that only illiterates from among rural folks flock to the metropolitan cities in search of employment is not borne out from the empirical facts.

of Maharashtra is almost the same at 42 per 1000 live births in 1981, though it is claimed that the infant mortality rate for the rural areas is under-estimated The expectation of life for men and women is found to be higher in the urban areas than in the rural areas. For example, female expectation of life during 1976-80 for urban areas in Maharashtra was found to be 60 9 for males and 63 7 for females compared to 53 4 for males and 54.7 for females in rural Maharashtra. Thus demographically, at the macro level, the conditions in urban areas are better than in the rural areas Studies by the Family Planning Foundation in 1987 in the slums of six large metropolitan cities in India reveal that though the slums are congested crowded and of poor sanitation, the slum population had a lower infant mortality rate than in the rural areas This, was probably, because of greater access of the slum population to the health care and medical facilities. Also higher literacy levels among the slum populations contribute to better health awareness, protection of their children through immunization against common communicable diseases and better utilization of available health services Thus though the slum population do live under extremely miserable conditions, it has to be recognised that they are better off than their rural counterparts, otherwise they would not have moved to slums in the first pl and continue to reside there for a long time tolerat such conditions

Rising expectatio

The perceptions of the urban population w regard to factors such as population dens pollution, accident and crime have been increas over the past few years, significantly, becuase of educational programme on these topics continuou put out by the mass media-radio and television-wh keep on harping about the damage done to environment because of pollution from industri automobiles etc. The level of awarencess of people to these problems has been considera raised during the past few years. The people h begun to expect more and more from the administration with regard to the quality of housi water-supply, air, transportation facilties, cle environment, open space etc They also expect m and more in terms of consumer-durables a entertainments While the per capita availability [illegible] things are really improving, though at a sl pace The expectations on these things have be [illegible] at a more rapid pace because of the effects various communication media If frustration can defined as the gap between what a person has

It is true that the pollution levels, crime a accident rates, population living in paveme and slums are already high and increasing the solutions to these problems have to found in the overall context of development the country as a whole and not in isolati only at the city level.

present and what he expects in the future, the le of frustration are increasing rapidly in the ur population more because of faster rise in expectati The demands of the urban people are increasing a ever faster pace than what can reasonably be These dimensions of the problems have to considered before taking any radical policy meas to improve the urban conditions.

The author is a noted demographer
Director, Internati
Institute for Popula
Science, Bom

The country is committed to a socialis[illegible] [illegible]n of society. To bring about this change we have to do many things in many spheres of activity. But the essential thing is to make freedom secure [illegible] broad-based and to bring the people in close association and partnership with the apparatus of administration and more especially, with the working out of our Five Year Plans.

Jawaharlal Nehru

Unorganised labour and rural development

Dr Malcolm S. Adiseshiah

Tracing the genesis of unorganised labour, the author notes that it has become synonymous with poverty. With agriculture dominating the rural scene, the largest number of underemployed and unemployed work force also belongs to this unorganised farm sector. Even though the problem of unorganised rural labour has been central to the theme of our Plans over the years, the situation does not seem to have improved very much, the author contends. Worse still, it is swelling the ranks of the unemployed following increasing casualisation of farmers and the onslaught of commercialisation. The record of the States in checking rural pauperisation and the scandalous practice of bonded labour is dismal. The author, a noted economist and development strategist, suggests a three-point action plan to ensure social security to the poorest here and now.

THE SCOPE OF THE term unorganised labour is wide and subject to change. It is sometimes used, as the title suggests, to refer to the workers employed in the organised and unorganised sectors of the economy; or to the area involving workers in the traditional as against the modern sectors of the economy; or to the dichotomy between the workers in the capitalist or subsistence sectors of the economy; or the sector which gives workers protection as against those which leave its workers unprotected; or to the distinction made between workers who are regularly employed (full time all the year round) as against the casual workers; or to the distinction between labour employed in large enterprises, and those working in small, village, or tiny units; and finally more recently and increasingly to workers in what is called the formal or informal markets.

What is common to unorganised rural labour in all the variegated areas listed above, which is the subject of this note, is that such labour is (a) non unionised and so has no protection from a trade union, (b) in reality unprotected by state legislation, regulating conditions of work and has limited or no access to government, (c) involved in traditional, indigenous technology which is physically demanding, and (d) found in small scale agricultural and allied (dairying, poultry, fishing, forestry) and non agricultural rural occuptions. This is not a definition but an empirical description of the unorganised rural labour in the country, and is at the heart of the programme of rural development to which the Plan from its inception has been committed and which has received new content and urgency in the Eighth Plan.

Some generalities

In dealing with the problem of unorganised rural labour within the programme of Rural Development, the question of whether such labour is a transitional phenomenon which will cease to exist as the rural area, led by agriculture and allied activities become capitalistic, or whether it is a sector nurtured by capitalist production for its use and exploitation, or whether it is an autonomous sector which has its own roots and inescapable being, which will resist the inroads of capitalism and its alleviating efforts, must be faced in devising the Rural Development strategy. I am inclined to the third (last) option, modified with some inputs from and to the capitalist modern sector, which at the same time is open to some exploitation by the urbanised modern sector. This preferred option follows from the historical persistence of the peasant type of organisation centred in the family farm, using in the main non-wage household labour and some extra household labour, with its competitive advantage over capitalistic forms of production, following from the absence of the profit

factor, and its replacement by the intensive fragmented competition, involving harder work styles and minimal consumption, which in the case of non peasant (landless) workers provides a fertile ground for exploitation. That is, basically unorganised labour whether in the rural or urban area is coterminous with poverty, because whether it be the marginal farmer, or landless labourer, or the migrant

Basically unorganised labour whether in the rural or urban area is coterminous with poverty because whether it be the marginal farmer, or landless labourer, or the migrant urban slum worker, they are each involved in a set of survival activities on the margin of poverty.

urban slum worker, they are each involved in a set of survival activities on the margin of poverty. This is brought out in the 29th round of NSS and the ORG survey which are set forth below

Table I

	household size	Seniors per house hold	Monthly income per house-hold (Rs)	Monthly consump-tion per house hold (Rs)	Outstanding loan per house-hold (Rs)
1. Small culti-vation house hold.	4.52	1 87	98	124	335
2 Non cultiva-tion wage labour house-hold	4 13	1 78	100	111	210

Source: Sarvekshana Vol. I No I

This table shows that the average monthly incomes of the small cultivator household and landless worker are around Rs. 100, with the major part being from wages for both. This is one reason why, in unorganised rural labour, both the small (marginal) farmer and landless labourer are included

Table II

Income of slum workers in Madras City

	Monthly Income Group Rs 0 150 %	Rs 151 Rs 350 %	350+ %	Total	Average Monthly Income Rs	% of workers of total in workers in the slum
Employment Status	68	29	3	100	143	21 80
Self Employed	72	24	4	100	140	50 00
Family Enter-prise workers	19	30	21	100	181	2 6

Source: ORG 1980

The above Table shows that 74 per cent of urban slum workers have a monthly income of Rs. 140-Rs. 180, which allowing for the higher urban cost of living is below the monthly income of the rural households recorded in Table I. This is one reason that urban slum workers are also classed along with rural workers, who are both in the unorganised sector.

Composition

The 28th round of the NSS gave the following breakdown of the composition of rural labour. The estimated rural working population is 198 million to which the usually unemployed should be added, giving a labour force of 201 million-139 million males and 61 million females. Rural workforce was in the main in the unorganised sector: 60 per cent are self employed or employed in family enterprises: 40 per cent are wage earners, of whom 75 per cent of male workers and 90 per cent of female workers are casual labourers. Eighty per cent rural male and 86 per cent of female labourers are employed in agriculture-animal husbandry, fishery and forests. Table 3 & 4 give the pattern of labour use in rural India and distribution of the pattern by agricultural operation and sex.

Worrisome features

Employment: The 1981 Census data shows that 64 6 per cent of the total 241.61 million workers are engaged in agriculture where the line between self employment and wage employment is hazy, and where agricultural workers are the majority ot the unorganised and weaker sections of the workforce And here in regard to the majority agricultural workers, it is important to recall that the 32nd and 38th rounds of NSS refer to the under-employment of those workers being 19.07 per cent and 21 04 per cent, which is more serious than their full time unemployment, which it establishes at 3.74 per cent and 3.97 per cent. Applying these ratios of underemployment to the current

Applying the ratios of underemployment to the current labour force of 241.61 million workers, it is found that 64 million of marginal farmers and landless labourers (usual status) are underemployed, and 9 million fully unemployed. Thus the unorganised rural labour-whether in farm or non farm employment – are (a) seriously under-employed and (b) to a lesser extent totally unemployed.

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Casualisation. The mid term appraisal of Seventh Plan calls attention to a major structural change taking place in the rural workforce as between the years 1971 and 1982-83. (There is need to accept some

delay to get results on this aspect from the 43rd round of NSS which was just concluded). The change was a double one : first an increase in the percentage of landless workers from 9.6 percent of the workforce in 1971 to 11.38 in 1982 (and estimated 14 per cent in 1989). The second is the decline in the percentage of self employed workers and a sharp and continuing increase in casual workers which Table V brings out :

This disturbing increase in the percentage of casual workers is attributed to (a) decline in the average size of land holding of the rural household which results in its being leased out and the marginal owner becomes a wage or casusal labour, (b) the breakdown of the traditional semi-feudal system– *jajmani, share* cropping, etc and(c) increased commercialisation of the rural economy to which reference is made later

Rural unorganised labour is becoming increasingly casualised.

Commercialisation : Several factors which are making both for commercialisation of agricultural and agro-industries have resulted in the proportion of wage labour in the rural workforce rising, and for that wage labour to be growingly casualised as just noted. The growing commercialisation of agriculture has intensified the process of widening and the integrating of rural market, which have led to relocation of rural industry, and allowed urban products increasingly to penetrate the rural market. These trends have fed under-employment and unemployment of unoranised agricultural labour.

Non farm labour. The commercialisation of agriculture, fed by the rapid growth of rural-urban

Table III

	All activities				Agriculture			
	Family	*Regular employ-ees*	*Capital labour*	*Total*	*Family*	*Regular*	*Casual labour*	*Total*
Male	30 2	5 3	9 7	45 3	25 2	2 4	7 8	35 4
Female	11 0	0 8	5 6	17 3				
Total	41 2	6 1	15 3	62 6	34 5	2 7	12 6	49 9

Source: Sarvekshana 1981

Table IV

Operation	*% distribution of total labour input*			*Ratio of female to male labour by type of labour*			
	Male	Female	Total	All	Family labour	Casual labour	Regular workers
Ploughing	14 0	1 5	10 3	0 043	0 04	0 05	0 003
Sowing	2 0	1,6	1 9	0 332	0.27	0 61	0 11
Transplantation	2 7	5 8	3 6	0 863	0.50	1 53	0 45
Weeding	7 2	14 7	9 7	0 831	0 66	1.32	0 22
Harvesting	12 7	19 5	14 7	0 629	0 52	0 90	0.23
Other manual work in agriculture	55 9	53 8	55 8	0 393	0 40	0 47	0 11
Non-manual work in agriculture	5.5	3 1	4 8	0 227	0 23	0 32	0.08
Total	100	100	100	0.408	0.37	0.62	0.11

Source. Sarvekshana, J-O 1981 S37-S38

Table V

Category	Male			Female		
	1972-73	*77-78*	*1983*	*1972-73*	*1977-78*	*1983*
Self-employed	65 90	62 77	60 40	64 48	62 10	62.21
Wage employed	12 06	10 57	10 77	4.08	2.84	3.10
Casual labour	22.04	26 66	28.83	31 44	35.08	34.00

Source: Sarvekshana Vol 14 No 4

transport improved commercial net works which have pushed (or pulled) increasingly the underemployed rural labour to migrate to towns in search of employment referred to earlier, or use the improved transport facilities to continue living with their rural homes and commute to their jobs in nearby towns. There is as yet no comprehensive information of the trend in the move of the

The growing commercialisation of agriculture has intensified the process of widening and integrating of rural market, which have led to relocation of traditional rural industry, and allowed urban products increasingly to penetrate the rural market. These trends have fed under employment and unemployment of unorganised agricultural labour.

unorganised rural labour to urban areas, except the growing volume of data on slums in the 12 metropolitan centres of the country, which give an impressionistic picture of this being a growing volume The question is however posed, why the non agricultural sector–both urban and rural–is not able to absorb all the available surplus labour from the rural areas The question needs study

Minimum wages · The minimum wage legislation is for the present the most important issue for rural unorganised labour The National Institute of Labour (NIL) in a survey for the parliamentary consultative committee on labour reports that there are 115 million unorgranised workers , that the minimum wages for them fixed by the States range from Rs. 8.50 to Rs. 12.75 per day which at the higher level works out to Rs 3600 per annum, and which given the poverty line of Rs. 6400 per annum, means that all minimum wages in all States, except Kerala forces

The National Institute of Labour (NIL) in a survey reports that there are 115 million unorganised workers; that the minimum wages for them fixed by the States range from Rs. 8.50 to Rs. 12.75 per day–which at the higher level works out to Rs. 3600 per annum, and which given the poverty line of Rs. 6400 per annum, means that all minimum wages in all States, except Kerala, forces the unorganised workers to live in poverty.

the unorgaised workers to live in poverty. What is worse is that even those low minimum wages are not enforced in any State, except Kerala; records and registers are not maintained : the actural wages and other payments in kind are about 50 per cent of what is legislated. Here is a serious point of exploitation of the unorganised labour

Bonded labour: One of the most scandalous features of the system of unorganised rural labour is the system of bonded labour. The NIL reports that the implementation of the Bonded Labour System (Abolition) Act of 1976 is tardy, and attempts to give the impression that the problem has been solved by the government, which reports smaller and smaller numbers of those still in bondage, and large numbers being freed, and even larger numbers being rehabilitated whereas data published on the basis of surveys by the Gandhi Peace Foundation, the Labour Bureau and the Ministry of Labour shows that the bonded labourers number 262 lakh, of whom only 21 lakh have been freed, and 16 lakh rehabilitated. The Comptroller and Auditor General in his report to Tamil Nadu in 1987 refers to the 4-8 years that is taken for rehabilitation against the legal requirement for immediate rehabilitation and to the fact that because the initial cultivable land and housing sites are completely unsuitable, some of those freed return to their bondage. Bonded labour seems to be an inescapable part of unorganised rural labour

Action plan

The country's social security system covering old age pensions, health and sickness insurance, accident compensation, maternity benefits, payment

A three point action plan is proposed covering the unorganised poor in the rural labour sector which need not wait till the country becomes rich and poverty is abolished. It proposes that the social security system can be closely targeted towards the poorest, who are not or will ever be reached either by the growth process or the anti poverty programmes–IRDP, JRY etc.

of gratuity, unemployment relief-completely exclude 90 per cent of India's workforce and all of the rural unorganised labour. In a thought provoking analysis of this situation, and what can be done for providing a minimum of social security here and now, with the limited resources available to the government at the Union and State levels, a three point action plan is proposed covering the unorganised poor in the rural labour sector which need not wait till the country becomes rich and poverty is abolished. It proposes that the social security system can be closely targeted towards the poorest deciles, who are not or will ever be reached either by the growth process or the anti poverty programmes– IRDP, JRY etc. The plan involves (a) the enlargement and improvement of promotional programmes for employment generation, drought relief, primary health care, medical antenatal and maternity facilities, rehabilitation of the handicapped, widows and orphans living in poverty: (b) the creation and maintenance of a nation wide old age pension scheme for those living in poverty: (c) the extension of life insurance for the poor with a subsidy from the Union and State government as a measure of survival benefits. This social security system for unorganised rural labour is

practical and viable and should be given serious consideration.

Enforcement

From time to time, the Union Government announces in Parliament the setting up of machinery to safeguard the interests of the unorganised rural labour. There has been a Central Standing Committee on rural unorganised labour and a rural working cell. In the Budget session of Parliament in 1987 the Government announced the setting up of a National Commission on Rural labour and actually established it in August, same year. There has been a committee on unorganised labour set up by the consultative committee of labour and the reconstitution of the National Commission on Rural Labour in June 1990. What is needed to help the unorganised rural labour is for the National Commission on Rural Labour to function primarily with a view to (i) monitoring the implementation of minimum wage legislation by the States as suggested by the 1980 labour ministers conference, ensuring that the States review minimum wages every 2 years and using not only the inspectors but also the revenue, rural and panchayati raj personnel for its enforcement and (ii) making a start on the 3-point social security system for the unorganised rural poor, particularly for those not being reached by any other programme.

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Lessons of poverty alleviation programmes

Neela Mukherjee

How is it that inspite of best of intentions and a number of anti-poverty programmes, not much dent could be made into the problem of rural poverty and a fresh beginning sought ? In this penetrative analysis, the author, backed up by her experience culled from field visits to Bihar, Kerala and West Bengal throws light on the areas of darkness. There is the mismatch between the demand and supply and a lack of holistic, concerted approach to generate the desired momentum to break the vicious circle. Focussing on the various rural uplift programmes, the author tries to find the missing links and the lessons for the future. She notes that in the absence of a tailor-made programme of poverty alleviation for the Third World countries, the efforts at overcoming this single biggest odd facing the country have made us a lot wiser. Hence the basic shift in planning from below.

POVERTY HAS REMAINED THE biggest challenge in India's developmental efforts to bring about a perceptible change in the quality of life of its teeming millions. Mass poverty in its multi-dimensions and concentration in rural areas has not proved to be a simple phenomenon to be captured through a specific poverty line of annual rupee income demarcating the poverty groups from the higher income groups It has also not been possible to improvise a full-proof strategy of poverty alleviation to face the challenge with equal force. India's experiments in poverty alleviation programmes continue because mass poverty continues to exist and no amount of achievements in other areas matter when a sizeable chunk of India's population remain emaciated and deprived of the fruits of socio-economic development

The package

Poverty is a complex phenomenon. Some factors responsible for poverty are internal to a poor person such as low calorie intake, mal-nutrition, sickness, low mental and physical capabilities and hence low productive capacity. Whereas some other factors causing poverty are external to that poor person like absence of proper socio-economic infrastructure like rural roads, safe drinking water, schools and hospitals or lack of opportunity to bear a proper means of livelihood. It is a combination of both internal and external forces which cause poverty in a household and any attack on poverty has to be cohesive and multi-pronged. The official programmes of poverty alleviation at the policy level have been tailored to attack poverty in its different facets so that the programmes are able to capture the complexities of the issue at hand. Hence four major routes to poverty alleviation have evolved at the policy level. One route to poverty alleviation is by providing income or purchasing power to the poor by means of self-employment or wage employment under Integrated Rural Development Programme, Jawahar Rozgar Yojana, Employment Guarantee Scheme and others. Such income is primarily required for meeting the basic necessities of life However income by itself may be a necessary condition but not a sufficient condition for reduction in poverty

The productive capacity of a poor person is also a crucial factor for income generation and earning of livelihood Such productive capacity may be constrained by the low accessibility of the poor person to a basket of minimum needs A poor household may not have access to safe drinking water which acts as a hindrance to his productive capacity. Similarly a poor man may not have the opportunities to educate his children which constrain human capital formation. Absence of a network of rural roads would hinder many poor households from marketing their produce and realisation of better income. Hence income generation programmes are required to be supplemented by minimum needs programme such as rural water supply, education, rural roads, rural health etc. They make for human capital formation and provide critical support to poverty alleviation by improving the quality of

environment within which a poor household operates. However, in addition to poor households, the other rural households would also benefit from improvement in conditions of living through minimum needs programme, whereas the poor households would directly benefit from the employment generation programmes, both for self employment and wage employment.

It is a combination of both internal and external forces which cause poverty in a household and any attack on poverty has to be cohesive and multipronged. The official programmes of poverty alleviation at the policy level have been tailored to attack poverty in its different facets so that the programmes are able to capture the complexities of the issue at hand.

The two routes to poverty alleviation discussed above namely route of providing employment and supporting it through minimum needs left to themselves are insufficient to take care of certain special causes responsible for poverty. Poor households in areas having hostile agro-climatic conditions deserve special attention. Living conditions are aggravated in naturally hostile areas like drought prone and desert-prone areas. The official area programmes such as Desert Development Programme, Drought Prone Areas Programme and others have been exclusively tailored to improve the living conditions prevailing in such areas. They help in increasing productivity and improving the quality of life of poor households.

The public distribution system in rural areas is supposed to cater to the basic consumption requirements of the rural poor at subsidised rates. Again the rural households with purchasing power are in a position to avail of services of the system while the poor households with low income are virtually left out of the system.

So far so good. However there are special groups of poor people who remain virtually uncovered at the policy level such as the mentally and physically handicapped, the aged, the widows and others who are in need of social security and protection for survival. Some minor programmes such as widow pensions, old age pensions etc. do exist but they need to be properly emphasized in terms of coverage and delivery.

Disjointed

At the policy level, the routes to poverty alleviation as discussed above cover the major dimensions of poverty alleviation programme but remain weak and deficient for not being knitted into an integrated whole. The attack on poverty cannot be in bits and pieces. It has to be a simultaneous attack from various directions. The attack on poverty has to be integrated via different programmes. Not only the productive environment of a poor household has to be made conducive but it has to be provided basic consumption requirements and also an opportunity to have a viable means of livelihood. However the policy frameworks of how the links are to be strengthened between different strands of poverty alleviation for implementation is not clearly defined. The link-up of different programmes for attacking poverty is weak at the policy level and consequently at the implementation stage. For instance the policy framework for integrating minimum needs programme with employment generation programmes or other programmes is lacking in perspective within a coordinated framework for implementation. The official approach still remains adhoc and not integrated. This restrains from making simultaneous inroads into the problem of tackling poverty in an efficient and organised manner.

A poor household requires great momentum to gather sufficient capacity to rise above the forces causing poverty. Official action to raise the household from the poverty trap has to be integrated, forceful and sustainable. For the poor household a quantum jump in income and other living conditions are essential to pull it off the poverty trap. Applying the Leibenstein's thesis the income of the poor household should increase continuously and reach a stage where income generating forces become more powerful than the income depressing forces and there is no problem of sliding back to the poverty trap.

Missing link

Another weakness of poverty alleviation programmes is that such programmes are heavily biased towards supply side economics. The stress is on the supply of goods and services by the Government to its poor people with the demand side remaining almost neglected. Little emphasis is there on the demand pattern of poor people and size of such demand. Practically no efforts are made to assess whether people really desire the same basket of goods and services which are supplied to them officially and how much of such goods and services they actually demand. Since not much efforts at the official level have been made in identifying the priorities and the demand patterns of the poor, the official delivery system to provide goods and services

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have virtually forced them on the poor households. There are several cases of assets supplied under IRDP programme which do not match with the requirements of the beneficiaries. Similarly cluster of houses constructed under the Indira Awaas Yojana in many villages have been abandoned by the beneficiaries because their preferences and priorities are different from the official ones. Such mismatch between

The attack on poverty cannot be in bits and pieces. It has to be simultaneous attack from various directions. The attack on poverty has to be integrated via different programmes.

demand and supply of goods and services required for development leads to wastage of resources, rejection of developmental process and does not benefit either the beneficiary or the Government. Exclusive stress on supply of goods and services by the official policy can at best be partially successful in alleviating poverty. Development is a two way process where demand and supply of goods and services have to be taken into account. The pattern of demand of the rural poor has to be identified and matched with the supply of goods and services for meaningful development.

Ground realities

Recently, I toured atleast 25 villages covering different blocks in 8 districts spread across the states of Bihar, Kerala and West Bengal. During may visit the focus was on the implementation of the poverty alleviation programmes in the villages and the perception of the villagers of such programmes. As far as the beneficiary-oriented programmes like IRDP/SCP/TSP are concerned the following have been outlined on the basis of interviews of a large number of beneficiaries both at their homes and at sites of their work. Certain selected issues came to light as follows:

(a) The household surveys conducted in the villages on many occasions were quite old and no recent surveys were available to present the current status of poverty in the villages concerned. Also there was little or no documentation of how many people remained under the poverty line and how many had actually crossed it through official assistance and howmanyhad gone below the poverty line in recent years.

(b) The income criteria for determining households below poverty line had many limitations. One such limit of income criteria was reached immediately when two or more than two poor households had similar income and were eligible for IRDP assistance according to official guidelines. Since [illegible] limited and no further criterion was available to decide which household should get the assistance the selection of beneficiary became arbitrary and caused considerable heart burning. Because of limitations of the income criterion it became difficult to maintain neutrality in selection of beneficiaries.

(c) Large scale leakages were coexisting with the programmes of poverty alleviation. Such leakages were in various forms and of various sizes. It appeared difficult to take care of all the leakages but some leakages at the official level could be curtailed through building up public awareness and also by creating conditions and necessary infrastructure by which the projects under individual beneficiaries programmes would become viable and self sustaining.

(d) It was pointed out by many beneficiaries that some assets under IRDP generated daily income and the beneficiaries were not in a position to deposit a part of their income in some institution at the end of the day and consumed it instead. There was also no official provision for repayment of loans on daily/weekly basis. Hence some beneficiaries with assets such as rickshaws and bullock carts wanted such arrangements to be made which would suit their repaying ability. It was suggested that recovery camps for loans if organized on a weekly basis would certainly improve their overdue position. They pointed out that for realisation of agricultural loans recovery camps were organised at the time of harvesting which yielded higher repayments of bank loans.

(e) It was observed that in many cases distribution of assets under IRDP was not on a rational basis. A few assets which were easy to handle

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such as bullock carts or paddy to rice schemes dominated the scene and excess supply of such assets in a block or a gram panchayat pulled down the average income of the beneficiaries.

(f) Another observation was that many projects had become explicitly unviable but they were still funded through assistance under IRDP causing saturation of projects and low average income for the beneficiaries. The ultimate objective of crossing poverty line through IRDP remained defeated under such circumstances.

g) Some instances came to light where technology had interfered with the viability of certain schemes. The preference of the villagers was reflected in the substitution of bullock carts in favour of mechanised tractors to carry both men and commodities in different directions not only at greater speed but also at lower per-capita unit cost and with greater accommodation capacity The bullock carts funded through IRDP were rendered unviable in the process.

h) For selected groups of rural artisans infrastructure for a common work-shed was created through IRDP assistance and marketing link-ups were provided by the official marketing agencies A part of sale proceeds of the beneficiaries were not realised due to non-receipt of payment from the official agencies The agencies for various reasons were not in a position to make payments to the beneficiaries in time

n the wage employment programmes the ervations were as follows

a) The priorities fixed at the policy level under the Jawahar Rozgar Yojana were not always easy to adhere to For instance, the targets for social forestry under Jawahar Rozgar Yojana were not easily achievable in semi-urbanised blocks

b) It was also observed that under employment programmes there was meagre provision of maintenance of permanent assets like buildings and roads and this was a major bottleneck in normal maintenance of asset created. Although maintenance is an integral part of the durability of any asset it was under-emphasised which worsened the conditions of the assets created.

ing my interaction with the trainees and trainers different centres where TRYSEM is being lemented the following points were observed ·

) Most of the trainees were of the opinion that there was need to extend the training period under TRYSEM for imparting intensive training and for skill building at an appropriate level The existing duration of such training was short and not intensive enough for a take off' of the beneficiary's project in terms of such an occupation for which the skill was being imparted The trainees also expressed the opinion that skill formation through TRYSEM was not adequate because they were not very well informed of the market opportunities existing for the goods and services in question. Hence the trainees felt that marketing skills and marketing network in the product/service concerned should form an essential ingredient of the TRYSEM package

(b) After completion of training not all trainees were tied up with IRDP assitance although provisions were there for doing so. The system was not automatic to provide IRDP loans to persons trained under TRYSEM.

(c) A good number of ineligible beneficiaries had crept into the programme.

Strategy shift

Poverty in all its complexities has been attacked in a piece-meal manner through different plans and programmes and an overall coordination of programmes in a multidimensional framework suited to the issue of poverty is still awaited. The poverty alleviation programmes have not been appropriately woven with the socio-economic fabric of rural India. The demand side of development of the rural poor which has to emerge from the clientele below the poverty line has been practically neglected. The emphasis has been mainly on the quantitative aspects of the programmes and meeting of ambitious targets from year to year. The diluted emphasis on the qualitative aspects of poverty alleviation programmes has affected the quality of assets created, the skill formation in rural poor, the kind of employment generated and the over all impact of the programmes on the quality of life of the rural poor.

India has been continuously experimenting with programmes of poverty alleviation trying to reshape and restructure the programmes on the basis of past experience It has been a process of learning by doing because there exists no tailor-made experience of poverty alleviation in a developing world which India can possibly emulate. India's disappointments and failures in attacking poverty has made her a lot wiser and open to self analysis and criticisms India has improved upon her past strategies and approaches from one Plan to the other and has shown a basic trend of shift in strategies of 'planning from above' to 'planning from below'. This shift in strategy could have dawned much earlier on India's economic scene. However, India is almost on the verge of approaching the clientele for whom she has been planning for nearly four decades. □

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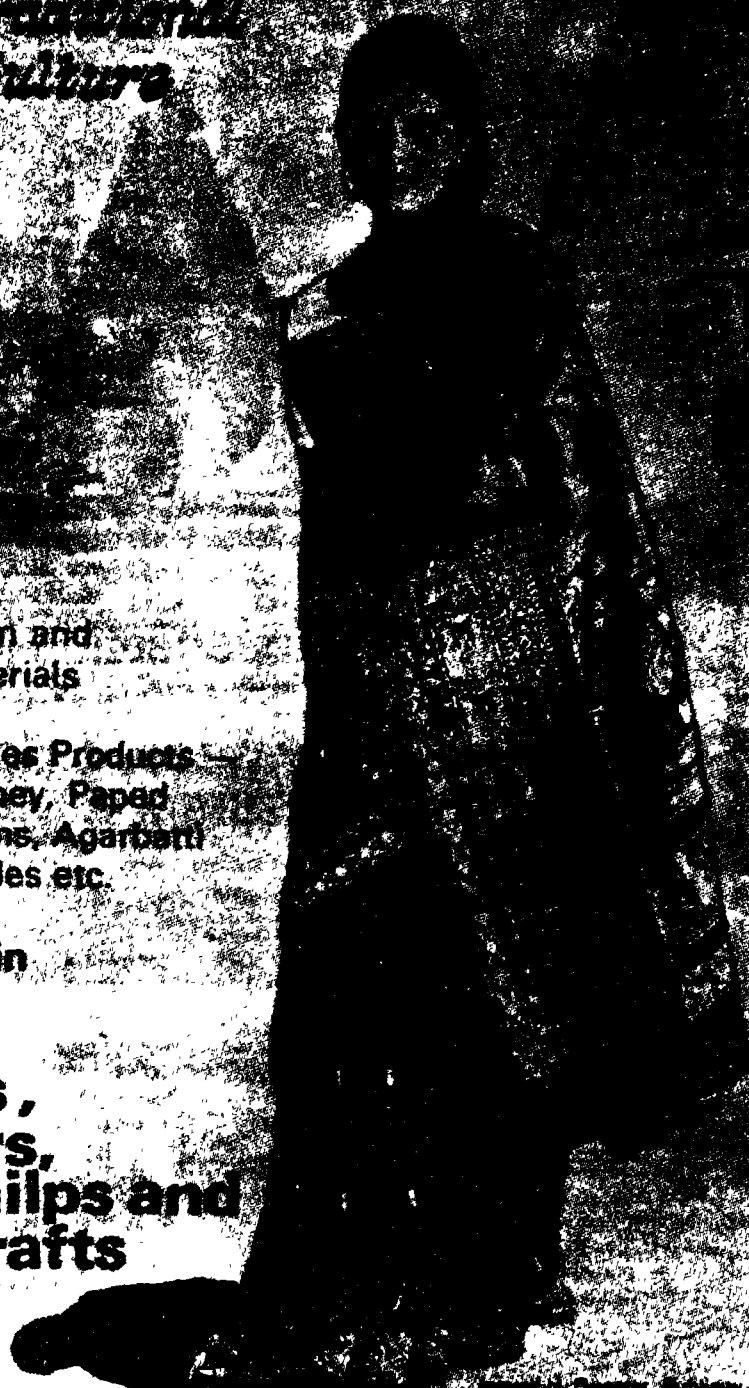
Restoring rural ecological balance some suggestions

M.N. Buch

The traditional land-use management in India satisfied the requirements of the village folks, including fuel, fodder and timber and maintained the ecological balance between soil, water and vegetation. The first round of land reforms in early fifties while breaking up the old management structure, did not, however, set in motion a self-sustaining mechanism. The interregnum witnessed encroachment of common land in villages. The demand on small forest produce cast its shadow on forests and their fast depletion. This not only adversely affected the life style of the economically vulnerable people dependent on forest produce, but also the ecology of the region. The author, a noted environmentalist, suggests that we should go in for mixed forestry which will yield small forest produce, to meet the requirement of those dependent on them. The technique of using degraded land should also undergo a change. Small projects, the author feels, would go a long way in restoring ecological balance at village level, heralding the real green revolution.

"OUR STRONG AND EQUITABLE rule so greatly encouraged the arts of peace that population soon began to press upon the immediately available land, and this circumstance, together with the moderation and certainty of land taxation, soon bestowed on property in land a value it had never possessed.... The culturable waste were becoming much in demand by enterprising settlers ... The forest question also became urgent... A fear arose of the impending exhaustion of the whole forests of the country "

(J. Forsyth in "The Highlands of. Central India," published in 1889).

Forsyth, one of the earliest Conservators of Forests in Madhya Pradesh, made the above statement when the State was largely unsettled, consisted of thick forests, had a sparse population and had no particular problem relating to land availability. Nevertheless when property in land acquired value both the forests and the village commons came under the occupation of individual cultivators and settlers, giving rise to a fear more than a 100 years ago that the forests of the State would disappear Had Forsyth been alive today he would probably have turned his face towards the wall and wept, because what he had predicted more than a century ago has today come to pass almost all over the country

The rural economy throughout India is agriculture based, which means that cultivation of land and the activities which are ancillary to it are not only the main économic activities, but between them they also constitute almost the entire ecological system of the rural areas The balance is very finely tuned. All the land fit for cultivation is brought under the plougn The village *abadi*, or settlement, is located on land which is not fit for cultivation but which is central enough to give access to water, communication and the cultivated fields. Because cultivation is not possible without draught animals and animal husbandry being an important part of village life, land not quite fit for cultivation but capable of bearing vegetation is reserved for 'charnoi", or pasture. In Madhya Pradesh even now the rules framed under the Land Revenue Code make it mandatory for ten per cent of the total land area of the village to be reserved for pasture. Of course this rule is now violated in totality. Other land is reserved for 'gothan', or resting place for animals, 'khalihan' or threshing floor, extraction of boulder, aggregate, murram and clay for various village purposes and similar other common uses. Also to be found in a village is land reserved for forest growth, recorded variously as big tree and small tree forest. Traditionally the waterways and water bodies were held in sacred trust, with the village pond having groves of trees around it and, perhaps, a temple on

the bund. The rivers and streams had thick woods on their banks, which helped in water conservation and kept a steady flow in the stream even during the dry season. In other words, the land use pattern in village India was designed to be in harmony with nature and to maintain ecological balance between soil, water and vegetation.

Nistar needs

In much of rural India the *nistar* requirements of people, which consist of fuel, fodder and timber for

Between 1951 and 1961, when the old management structure was broken and the new structures had not emerged to replace it, there was an interregnum in which village forests were decimated and village commons encroached upon or otherwise removed from social use.

agricultural use and building construction, were met from village common lands Taking the example of Madhya Pradesh, every village had a *nistar patrak* and a *wajib-ul-arz* prepared for it, which laid down the rotation of grazing, extraction of fuel and timber, etc , and also stated what rights individual villagers had in the village commons. These rights and concessions were enjoyed by all, including the andless. Regular *nistar coupes were marked out in* the village forests and the village headman, or 'patel', was responsible for ensuring that extraction of material was done according to the working scheme and the prescriptions given in the village *nistar patrak*. Right upto 1951 this arrangement worked, largely to the satisfaction of the villagers and without bringing about any widespread disturbance in the natural vegetation cover available on village commons. The position was very similar in other States also. For example, in Garhwal and Kumaon the rotation pattern of working of civil soyam forests was prescribed and the village community ensured that lopping of trees for fodder and fuel was done strictly according to the prescribed rotation This ensured that time was available for regeneration and the forests continued to yield adequate material to satisfy village *nistar* needs.

In 1951 the first round of land reforms abolished all intermediaries, such as malguzars, jagirdars and zamindars. Whilst these functionaries were rooted either in the Permanent Settlement of Bengal or, in *ryotwari* areas, had feudal origins, they did perform the very useful function of managing the village common lands. Between 1951 and 1961, when the old managment structure was borken and the new structures had not emerged to replace it, there was an interregnum in which village forests were decimated and village commons encroached upon or otherwise removed from social use. Vegetation along river banks was cut down, with ***Terminalia arjuna*** or Arjun, being the main victim. The timber of this tree makes excellent charcoal and its bark is used to manufacture oxalic acid. But it is the shallow roots of this tree, which spread into the river bed and form matted vegetation bunds, which perform the most useful ecological task assigned by nature to this species. The roots directly retard river-flow and also capture silt and debris, to form a series of small bunds across the beds of fast flowing hill streams. This slows down flow and allows percolation of water into the sub-strata. The arjun tree is nature's greatest agent for conservation of water and its whole-sale massacre has seriously disturbed the water regime of most of our streams and rivers In another context it is the grasslands and thorn forests of the Saurashtra region which, in the past, performed a similar function of water conservation and kept the streams and under-ground water sources of this very dry region in a state of good health. The almost total disappearance of thorn forests and the conversion of grasslands to phoughed fields has so disturbed the water regime of Saurashtra that no amount of rainfall or external induction of water will restore the old equilibrium.

Denudation and effects

The chopping down of the village forests has had a whole series of undesirable consequences. If we take the example of western Madhya Pradesh, where the terrain is undulating, the disappearance of grasslands and forests has resulted in widespread

The arjun tree is nature's greatest agent for conservation of water and its wholesale massacre has seriously disturbed the water regime of most of our streams and rivers. The almost total disappearance of thorn forests and the conversion of grasslands to ploughed fields has so disturbed the water regime of Saurashtra that no amount of rainfall or external induction of water will restore the old equilibrium.

soil erosion, rendering most of the agricultural fields sterile. This is why in Jhabua even an average annual rainfall of 830 m.m. has failed to prevent continuous, recurring, annual droughts. Land throughout the district has such low fertility that regardless of precipitation the crop is bound to be poor. Whilst the felling of the forests has deprived the villagers of *nistar* in that neither fuel, nor fodder, nor timber are available, it has also deprived them of economic agriculture, and, therefore, of a reasonable livelihood from land. Because this has also disturbed the water regime there is acute shortage of drinking water and this has resulted in the cattle population dying off and

human beings facing deprivation and hardship. The social cost had also been very high because the Bhil tribals are forced every year to migrate temporarily in order to earn a living, either as agricultural labourers in distant places, or as unskilled workers in towns, or as manual labourers on relief works. This constant migration has broken up tribal groups, villages and families, deprived children of the opportunity of education and health care which cannot be imparted because they are constantly on the move and has resulted in social dis-orientation of a people who, in the past, enjoyed ethnic homogeneity. The disturbance of the ecological equilibrium in villages, therefore, has disrupted agriculture, family and social groups, whilst also bringing about a drastic reduction in *nistar* facilities.

After Independence the hold of the vested interests was slightly loosened, though it is these very people who became the main instruments of destruction of the village forests and encroachment on common land. The State, on its part, adopted a weak-kneed policy of tolerating encroachment and destruction and allowed the delicate balance of land use in villages to be severely disturbed.

Village forests and village commons not only provide *nistar*, they also provide employment for the landless and the poor in village society. They support village artisans The potter, brick and tile maker, mason, wheel-wright, carpenter, dairy-man and paid grazier are all dependent on village commons. Clay, metal and boulders are extracted from these lands and provide employment. The village forests not only provide timber for *nistar* but also raw material for carpenters and wheel-wrights and fuel for sale by headloaders All the agricultural implements in the village are fashioned out of local wood, if available Minor forest produce such as tendu leaf, mahua flower and seed, tamarind, neem seed, commercially useful grasses such as sabai, khas and rosha, and raw material for brooms and brushes such as phul-bahari and chhind, as also various fruits, bamboo, harsinghar twigs for basket making etc, are all collected by the poor for sale or consumption The children of the poor earn a living by grazing the cattle of the more affluent farmers and they collect dung as a fuel for their hearths. In other words, village commons are a major main-stay of the village economy, especially of the poor, and their reduction or disappearance directly hits the weaker sections of the society. As village forests are cut down and village commons encroached upon it is the poor who are most deprived and their poverty enhanced. The rich can always obtain fodder and agricultural waste as fuel from their fields or they can buy *nistar* material from the market. The poor are deprived even of whatever little they could get from land owned by society as a whole. By allowing the running down i village commons after Independence we have, i fact, brought great misery to the poorest sections (village society.

The void and afte

Why has all this happened, especially in a societ whose Constitution enjoins equality and soci justice ? Prior to Independence there were tw separate forces at work in rural India to ensure th all village land were managed according to prescribed pattern. The first was the State which through a system of land records and village officials ensured that there was peaceful enjoyment of 'Khat and by the land owners but, simultaneously, ther was no encroachment on State or village commo land. By an large this protected the village commons Of course land ownership was highl iniquitous and the tenant was not protected, whicl was the perverse side of the land managment picture The second interest group which operated was larg land owners and the malguzars and othe intermediaries, who had a vested interest in ensurein that the commons and village forests wer maintained properly so that they could derive ar income therefrom. After Independence the hold o the vested interests was slightly loosened, though it i these very people who became the main instrument of destruction of the village forests and encroachmen on common land The State, on its part, adopted a weak-kneed policy of tolerating encroachment and destruction and allowed the delicate balance of land use in villages to be severely disturbed. I still remember that towards the end of 1984 a group of women approached me in a village in Hoshangabad District with the complaint that they had no place left

The British system of high forests, with uniform age and species crop, has removed from many of our reserve forests the ground flora, shrubs and middle storey miscellaneous species which, in the past, served *nistar* needs. The time has come when the European silvi-cultural practices, as adapted to India by Brandis and Troup, are abandoned and w go back to a system whereby the mixed nature of our forests is restored.

even to answer the call of nature. According to them the rich, who had latrines in their houses, ha encroached on all the village commons and even cu down shrubs so that there was no privacy availabl anywhere in the village. Had the State stood firm an protected land meant to serve all the people, such sorry state of affairs would not have come to pass.

If the State, through passivity, permitted the villag land-use pattern to change, it also actively connived at it by changing the land-use of village commons and transferring them to private ownership, either by

settlement of encroachment or by giving pattas, ostensibly to the landless but very often to the vested interests who used the landless as a front. With village 'charnois' and small and big tree forests being thus gifted away, the villagers had no alternative to having rcourse to the reserve forests for *nistar*. It is only in 1961 that many of the ex-malguzari forests, which had become no man's land between 1951-61, were transferred to the Forest Department for management as protected forests, but by then they had become totally degraded. The reserve forests, which continued to be worked commercially, were just not designed to withstand the biotic intervention generated by *nistar* with the result that many of them began to have a distinctly frayed look. In the district of Tehri Garhwal alone vast evergreen forests, largely oak, disappeared under this onslaught and those which survived were reduced to scrub. In the State of Madhya Pradesh about 4 million hectares of forests were wiped out or damaged almost to the point of extinction. This is a direct consequence of disturbance of the village ecological equilibrium, which has resulted in *nistar* pressure transferring from village commons to the environmentally and ecologically sensitive reserve forests.

Response

What has been our response to this fast deteriorating situation in village India ? The environmentalists have been stridently calling for a complete closure of all our reserve forest, even for *nistar*. Their suggestion is that the social forestry programme on village commons and agro-forestry on farm lands should be the sole suppliers of *nistar* to the villagers. This programme has no chance of success for the following reasons:

(1) There is a long gestation period in the growth of forests and, therefore, projects under the social forestry programme have never been completed to keep pace with increasing *nistar* needs. These needs are being satisfied from the existing forests, especially in the matter of fuelwood. It is our experience that where there are reserve forests people are not interested in the social forestry programme and where there are no forests very little land is available for societal afforestation.

(2) Most village commons are encroached upon or otherwise put under alternative use. Land which seems to be physically available is not socially available.

(3) Our social forestry programme has generally gravitated towards land so degraded that it requires years of preparation and management to bear vegetation. A programme which should be designed for a 20 years period is funded only for 3 to 5 years and, therefore, it fails.

(4) The village social organisation has largely disintegrated and, therefore, local level management of village commons leaves much to be desired. Until village management structures are rebuilt the social forestry programme cannot work.

(5) The agro-forestry programme is successful only at a few places and that, too, on the holdings of large farmers. Such forestry is a commercial activity. A social forestry programme meant to serve the poor cannot succeed on a base of commercialised forestry by rich farmers.

Suggestions

How, then, are we to restore the rural ecological balance and ensure that village *nistar* requirements are adequately met ? The British system of high forests, with uniform age and species crop, has removed from many of our reserve forests the ground flora, shrubs and middle storey miscellaneous species which, in the past, served *nistar* needs. Teak, sal and chir are not really the trees which the villagers need in *nistar*. Their preference is for poles and small sized logs of miscellanceous timber, shrubs for fuel and grass and other ground flora for fodder. The time has come when the European silvicultural practices, as adapted to India by Brandis and Troup, are abandoned and we go back to a system whereby the mixed nature of our forests is restored. This is not a revolutionary idea because Forsyth, who wrote more than a 100 years ago on the new-fangled German and French forestry practices being introduced into India, wrote, "The danger is lest a too purely professional view of forest questions be allowed to exclude considerations bearing powerfully on the general economy of the mass of the people, and particularly of the hill tribes; and lest cut-and-dried theories, based on the example of moist temperate regions, be applied without sufficient caution to the very different conditions of tropical forests. For example, one of the practices of continental forestry, the working of forests in blocks by rotation, though probably quite inapplicable to a hot country, where stripping the soil of all the trees at once converts it into an arid desert, is still aimed at in our Indian forests."

Degraded lands need closure and protection from biotic interference if they are to be restored. The experience throughout India is that an area brought under such protection soon bounces back as nature regenerates the forests from latent root-stock. Here we need the cooperation of the people, for which purpose they have to be convinced that the entire usufruct of the restored land will be reserved for them alone and will not be exploited commercially by the State. Even in the first year of closure sufficient fodder should be available from most such lands to largely satisfy local grazing needs, provided the grass is cut and given to cattle in stalls or paddocks. In those districts where deforestation and erosion have deprived the soil of fertility and the river systems of water, we must pay cultivators not to plough the

fields but to revert them to grass, shrubs and trees. Simultaneously there has to be programmes of wage employment, reduction of cattle population through exchange of local cattle with high grade cattle to be provided by the State. The local cattle be kept in 'gosadans' and the development of dairying and animal husbandry should go hand in hand with pasture development. The village economy would then change from one of growing marginal quantities of cereals to a much higher level of scientific pasture development and dairying and exploitation of such forest produce as would come up on the land taken away from the plough. This would also bring about a change in the water regime as the vegetation conserves moisture and recharges the sub-strata. This process could be assisted by a series of percolation tanks, ponds, etc. These would all be steps towards restoring the old ecological balance, thus causing drought to retreat as the soil-moisture equilibrium is restored.

Funding

The resources for restoration of the village environment will have to be found. This is where there is conflict between the enormous demands of large projects and the relatively small demands of individual village projects which, together, aggregate into a substantial sum. The large projects always win because the smallar projects are treated as residua The argument is that if a dam needs "X" crores rupees it must be given the entire amount, otherwi it cannot be constructed. On the other hand if a sm village environmental programme needs "X" +" rupees, it is perfectly in order to further reduce tl by amount "Z" and leave it to the local people improvise. What happens, of course, is that tl project withers for want of resources and when v add up the waste in a large number of such projec we ultimately come up with substantial fritteri away of resources. This is one of the most fooli systems of resource management that one ca envisage. At the same time a threshold level investment in small projects gives fast, long lastir and completely satisfactory results, which many our large projects fail to do. Now that the Eighth Pla is under formulation we are in a position to chang our priorities. Projects aimed at restoring th ecological balance at village level must have primar importance and large projects should be relegated t a residuary position. If this happens, within 10 year the shape of India can change as the forests com alive, the rivers begin to flow and the fields begin t yield enough for all. This would be the real gree revolution in India. □

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ESTABLISHED 1879
POLYESTER WOOL SUITINGS
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The challenge of potable water supply

M.V. Rajasekharan

"We need water, not gold"–thus reads a sign board in a dry zone village in Myanmar signifying value of water to the needy. As the UN designated International Drinking Water Decade launched in 1980 comes to a close, it is time we took a close look at our achievements. The author, a veteran Rural Development Strategist, cites case studies of several Third World countries and makes a strong plea for converting it into a mass movement. This could also become important segment of Rural Employment Generation Programmes. Sounding an alarm on slaughter exploitation of ground water resources, the author suggests the setting up of a Central Water Authority in each of the Third World countries for scientific use of existing water. The paper also suggests that rural women folks should be actively associated in the selection of water sources.

IT IS UNIVERSALLY ACKNOWLEDGED that potable water has wide-ranging impact on rural development They are: (1) Drinking water is a basic need, (2) Rural water supply is a social service and its schemes have to be integrated and (3) Greater village-land development (employment opportunities and income-generation) In some Third World countries, Tanzania, for example, rural water supply is considered pivotal in attempts to transform the existing social order Perhaps this is why governments are now giving more stress on active local participation. The data on villages in the Third World countries prepared by the Development Centre of the organisation for Economic Co-operation and Development (OECD), Paris, suggests that participation plays an important role in rural water supply systems

Significance

"WE NEED WATER, NOT GOLD", says a signboard in a dry-zone village of Myanmar which reflects significance of water as a basic necessity and a key to life. Millions of individuals in the developing countries do not have access to clean water in sufficient quantity. Individual domestic needs are estimated at 20 litres per day. Yet many people, particularly in the Third World rural areas, do not get even this quantity of water.

The UN conferences on Water in Habitat in 1976, in Mar det Plata in 1977 and other meetings have underlined the need for better water control, if we are to ensure self-sufficiency in food, energy and industrial promotion The Alma Ata Declaration of 1978 identified inter-sectoral action as a key element in Water management and as one of the most important strategies The International Drinking Water Supply Decade, launched by the UN in November 1980 has as its ultimate objective, extension of potable water supply to all, particularly in the rural areas of developing countries by 1990 The Commonwealth Science Council's Workshops arranged in Botswana in November 1985, and in Bombay in January 1986, recommended establishment of a Central Water Authority in each country of the Third World to facilitate exploration and harnessing of water resources for domestic, industrial and agricultural purposes in the rural areas in the framework of the UN Decade

A World Bank Study in May 1986 on ground water resources of Bangladesh, Burma, India and Nepal said that the Ganga, Brahmaputra and Irawadi river basins have been subject to large-scale exploration and development could eventually benefit upto 500 million rural people living around these water resources

By making the eighties an International Drinking Water Decade, the UN in fact was calling for a

fundamental human right to be granted. It is unlikely that even 80 per cent of the rural dwellers of the Third World will get drinking water by the end of this Decade. The UN Economic and Social Committee's Report last year showed that only about 345 million more people in 130 developing countries could be supplied drinking water in the first four years of the Decade. This is a modest result when considered that there are still more than 1,200 million people without drinking water in the Third World. A closer look at the first results of the Decade shows that the developing countries have made water as one of their priorities and the goal is part of the overall programme. In 1981, only nine countries did this, but by the end of 1988 the figure was about 130 This does reflect the commitment and the international community should make greater efforts for the success of the UN Water Decade. The need of the hour is encouraging people's efforts in evolving a scientifically based, multipronged strategy and dovetailing collaboration of the UN agencies, governments and voluntary agencies.

The challenge and India

In India, the rural population accounts for nearly 78 per cent of the country's total population. In the Decade Plan (1981-91), highest priority is given to the provision of water supply It provides for covering 30 per cent of population with piped water supply and 70 per cent through spot resources There are 37,017 villages in India which do not have even a single source of drinking water. More than half of the total villages in India have only limited drinking water facilities, i e. only one source of water supply Out of about [illegible]1 lakh problem villages identified in 1980, about two lakh of them were provided with at least one source of [illegible]afe [illegible]inking water during the Seventh Plan period [illegible]y was Rs 6,522.47 crores The Seventh [illegible]overed villages which do not have [illegible] supply in rural areas within a radius of [illegible] km and also enhanced the per capita norm for water supply from 40 litres per capita per day to 70 litres It is a sad commentary that inspite of 42 years of freedom, there are still many villages in the country where people have to take water from the same source where domestic animals also drink water as there is no safe drinking water facility in such villages.

The Technology Mission formulated a plan to cover 62,000 villages in 1988-89 and 1989-90, but there are problems in implementation. It is now estimated that the country will enter the Eighth Plan with about 10,000 problem villages Thus out of 32,700 villages proposed for coverage, only about half were actually covered. The National Water Policy (September 1987) underscores the need for utmost efficiency in water utilisation and public awareness of the importance of its conservation. People's participation is particularly relevant in the context where nearly Rs. 1000 crores is spent for drinking water. Here non-governmental organisations (NGOs) play a crucial role.

Potable water strategy

As ground water is the source on which our potable water supply programme is based, it is of paramount importance that we study it more carefully and have data regarding this resoruce on a water-shed basis. We should take steps for increasing the availability of ground water on a scientific basis. Such measures can be taken up under Rural Employment Programme and could be utilised for improving and preserving the local ecological balance. Though the principal beneficiaries of this programme are rural women, it is found that they are not adequately consulted in the choice of the location of the water source resulting in inconvenient choice of locations. It is necessary that prior consultation with women must be insisted upon before choosing a location. Government cannot tackle this vast problem alone. The protessional and technical expertise available in voluntary sector need to be identified and mobilised *Pani Panchayat,* a voluntary agency in Maharashtra, is a pointer in this direction. This would not only supplement government's effort in making supply of potable water inexpensive, but will also ensure the participation of the community

Special emphasis has been laid on the potable water supply to Scheduled Castes and Scheduled Tribes According to the evaluation of the Rural Water Supply Programme carried out in 2090 villages of the country, 81 per cent of all the sources are easily accessible to SCs and 85 per cent to STs The voluntary organisations are encouraged to take up projects under Accelerated Rural Water Supply Programme. Works under Jawahar Rozgar Yojana, Drought-Prone Areas Programme and Desert Development Programme have been geared up to meet the demand of potable water supply in rural areas.

A gigantic task

To give safe potable water to every human being by 1990 is a gigantic task. It means that every day during the Decade water should be made available to five lakh new individuals The cost of this venture is calculated to be approximately 600,000 crore dollars. The United Nations and the World Bank have taken up this challenge very seriously When we consider that the annual arms bill of the world is around 800,000 crore dollars, the aim of the Decade does not look impossible As it is for the people, it has to become a people's programme Water obtained from natural surface sources like lakes, streams, rivers and springs etc get contaminated with pollutants arising from human activities and need treatment to make them suitable for drinking Water treatment systems to be installed in rural areas should not only be simple to construct and operate, but also economical in installation and operation.

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Agricultural productivity: problems and prospects

N.S. Randhawa

Pitted against rising population and declining land resource, with the inevitable outcome in shrinking availability of foodgrains, Indian agriculture presents a sombre picture. With his first hand information on the subject and its changing pattern, the author discusses various facets of the problem in this broad canvas and underlines the areas needing greater thrust. Outlining the programmes in irrigated and rainfed areas, he notes that there is tremendous scope to bridge the gap between the reality and the potentiality. Even in case of improved varieties, the prospects can be enormous if certain patterns are followed systematically. He also emphasises the need for proper use of irrigation facilities and prefers utilisation of ground water resource to suit local needs in preference to ambitious projects. The author also touches on animal husbandry to supplement income of the rural folks.

THE INDIAN AGRICULTURE HAS made significant stride during the last 4 decades of planning. In spite of the fact that the population increased from 361 million in 1951 to more than 800 million during the year 1989, we have not only been able to maintain the per capita availability of foodgrains but also slightly improve upon the same. During this period the farm holdings as well as the per capita availability of agricultural land has also been shrinking and these are expected to be around 1.4 and 0.14 ha respectively by the turn of this century With competing demands upon land for other sectors of development, it is going to shrink further. However, we are committed to ensuring continuing food and nutritional security for our future population from this rapidly declining basic land resource. The only way to fulfil this obligation is through continuous gain in productivity of various agricultural commodities

It may be appropriate to gauge our performance for improvement in agricultural productivity of some important crops in selected States of the country (Table 1 and 2).

A perusal of the given data reveals that the productivity gains in wheat, rice, cotton, sugarcane and potato have been satisfactory. However, the production and productivity of pulses, and oilseeds which have been lagging behind in the past few years have shown a significant rise during the 1988-89. This is attributed to good weather as well as strategic efforts made in this direction, particularly in respect of oilseed crops. In order to sustain these ga also to improve upon the same, it has been de continue the Technology Mission on Oilseeds the 8th Plan and also to broaden its scope by in pulse crops in this programme

Although we have received appreciat maintaining food security when we c our performance (Table 3) with other countri Asia-Pacific region and even with the regio world averages, we have a long way to catch them. With gradually improving economic particularly when total population w raised above the poverty line, their ac food items is expected to improve consi Therefore, in the Seventh Plan document, capita net availability of foodgrains in the ye has been projected at 215 kg p.a. which demand foodgrain production of 250 mt in th With these projections we have to more than the pace of growth (7mt. p.a). as compar earlier average increase around 3 mt p.a du last 40 years.

The major inputs for bringing about sub increase in crop production and sustaining levels of productivity are improved land a management technologies; availability of seeds of high yielding, input responsive an tolerant crop varieties; increased irrigation use of agricultural chemicals especially fe and pesticides and relative improvement in a

institutional finance. It is heartening to note that wherever in our country we have been able to ensure the availability of the above components of the support system to agricultural production our performance in productivity of various crops per unit time/area is comparable with the best the region (Table 4 and 5).

The major inputs for bringing about substantial increase in crop production and sustaining growing levels of productivity are improved land and crop management technologies; availability of quality seeds of high yielding, input responsive and stress tolerent crop varieties; increased irrigation; higher use of agricultural chemicals especially fertilizers and pesticides and relative improvement in access to institutional finance.

Important issues

In the recent past, our attention is being often drawn to four important issues facing the world agriculture and equally relevant to India are:

Sustainability,
- Crop production in efficient environment,
- Economic competitiveness; and
- Equity and social justice.

Sustainability: The sustainability of our agriculture is endangered by over exploitation of the favourable environment in several States of India. The ground-water has been declining at a very fast rate and in some situations we have started exploiting even the fossil waters. The increasing dependence on agricultural chemicals is leading to problems of land and ground-water pollution. Emergence of multiple nutrient deficiencies is another area of concern. Elimination of forest cover and neglect of marginal agricultural lands have accelerated the processes of degradation and in quite a few areas, we are approaching the point of no return. There is an increasing awareness for a move towards alternative agriculture which is expected to pursue the following goals:

- More thorough incorporation of natural processes such as nutrient cycles, nitrogen fixation, and pest-predator relationships into the agricultural production process;
- Reduction in the use of off-farm inputs with the greatest potential to harm the environment or the health of farmers and consumers;
- Greater productive use of the biological and genetic potential of plant and animal species;
- Improvement of the match between cropping patterns and the poductive potential and physical limiations of agricultural lands to ensure long-term sustainability of current production levels; and
- Profitable and efficient production with emphasis on improved farm management and conservation of soil, water, energy and biological resoures

Crop Production in Efficient Environment: The present cropping systems followed in the country are based on traditional experiences. Some of the main reasons for growing a crop in environments other than the best suited for it are : (i) necessity of meeting the household needs, (ii) non availability of better alternative crops, (iii) availability of marketing infrastructure and (iv) constraints of farm inputs. However, in view of the substantial progress made in the past through intensive researches carried out by the various agricultural universities and ICAR Research Institutes/coordinated Projects, it has been shown that a more efficient utiliztion of the natural resources is possible by suitably modifying the present cropping systems in various regions of the country Introduction of winter maize in Bihar, short duration rainy season (Kharif) arhar in Punjab, summer groundnut in irrigated areas of Gujarat, Andhra Pradesh, Orissa and Maharashtra and Soyabean in Madhya Pradesh are a few examples. The major aim of the National Agricultural Research Project (NARP) of the ICAR is to ensure that every agro-ecological region zone/sub-zone of the country is adequately equipped with research infrastructure which will permit us to generate site-specific technologies for practising an agriculture which is in harmony with its environments.

In view of the substantial progress made in the past through intensive research carried out by the various agricultural universities and ICAR Research Institutes/Coordinated Projects, it has been shown that a more efficient utilization of the natural resources is possible by suitably modifying the present cropping systems in various regions of the country.

Economic Competitiveness: We cannot afford our agriculture to continue at the subsistence level and it has to be economically competitive and simultaneously remunerative to the farmers so that they can continue to stay on the farm and make enough money to achieve living standards comparable to those in the urban areas. This will only be possible through significant gains in agricultural productivity and continuous improvement in the use-efficiency of all agricultural inputs.,

Equity and Social Justice; During the last two decades intercrop and inter-State disparities have been a source of concern. (Table 2) It is obligatory for the scientific community to develop crop production practices and farming enterprises which will gradually reduce these disparities.

In order to achieve the goal of agricultural development in terms of high productivity,

profitability and sustainability under irrigated and rainfed conditions, the following strategies need to be adopted .

Irrigated agriculture

Developing data base for appropriate agricultural development: Considerable progress has been made in the establishment of a national network for a comprehensive and reliable data base system in the

One of the major areas of specialisation is 'Soil and Water Conservation Engineering'. Agricultural Engineers can be an excellent technical resource for promoting improved on-farm water management practices. Another weakness is the belated start of the Command Area Development Programmes which should be undertaken concurrently with the inception of the project so that by the time the project becomes operative, the Command Area is well prepared to utilise irrigation water as planned.

country. This has to be geared for inclusion of various facets relevant to agricultural development such as area-wise soil, water and climatic resources, land use, water resources development, water release and utilisation as well as benefits and damages from irrigation system; crop area, production and productivity under rainfed and various levels of irrigation-water availability; demand and supply of basic and allied inputs, credit requirements and flows; requirements and production of food and non-food materials; social, economic and agrarian structure; resource potential and constraints, growth trend and bottlenecks; internal requirements and export possibilities, etc Analysis and interpretation of these data will help devise systematised policy perceptions on the whole gamut of agricultural development and realistic area specific action plans, keeping in view the short range and long range objectives. Establishment of this network will permit us to eliminate the weaknesses in the contents and reliability of the data base as well as the lag in time frame.

Allocation of adequate resources for appropriate water management: It is generally recognised that the Eastern Indian States in spite of rich endowments of soil and water resource base have lagged behind on account of socio-economic constraints. The productivity in this region is handicapped for lack of appropriate water resource management policies and mangement practices The major development strategies for these areas required sizeable allocation of funds for drainage, ground water resources development and matching role of electrification to utilise the irrigation potential, coupled with the development of infrastructure to ensure availability of inputs, services and technologies.

Re-orientation of Command Area Devel Programmes: The working of the Comman Development Authority will have to be re-orie that it should have functional involvement in and distribution of water from headworks to tl gates. A unified agency consisting of irr engineers, agricultural experts and f representatives will have to be created to water release and distribution in the whol system. Colleges of Agricultural Engineerin been established in most of the agric universities. One of the major areas of specia is 'Soil and Water Conservation Engin Agricultural Engineers can be an excellent te resource for promoting improved on-farm management practices. Unfortunately, their r yet to be recognised Farmers being benefici irrigation projects have a great stake in management but they have not been involv and hence did not care for efficient utilisation Another weakness is the belated the Command Area Development Programme should be undertaken concurrently wi inception of the project so that by the time the becomes operative, the Command Area prepared to utilise irrigation water as plann

Regularising water allocation for mand cropping pattern: The major objective irrigation system is to provide food s Therefore, the frame work of all irrigation provide for a minimum allocation of 60 to 70 irrigation potential to food crops However, i irrigation commands, the ground truth variance and most of the water is being dive commodities and crops other than food cro

As a matter of policy, share of allocation needs to be enhanced to push productivity and production of ne crops such as coarse grains, pulses, oi fruits, vegetables and fodder. For main national food security system as well as principle and water distribution, imperative to prioritise and subsidise supply to food crops and low water dem crops in preference to cash crops an water demanding crops.

possible to attain the desired cropping pa regulating water allocation to crops for appropriate policies and provisions of pena incentives will have to be framed As a n policy, share of water allocation needs to be e to push up the productivity and produ neglected crops such as coarse grains, pulses, fruits, vegetables and fodder. For mai national food security system as well a principle and water distribution, it is impe prioritise and subsidise water supply to fo and low water demanding crops in prefe

cash crops and high water demanding crops.

Nutrient and pest management: It is well recognised that the availability of water at the farm gate helps to gain the confidence of the farmers for adoption of a complete package of crop production technologies. However, it is not so in many Irrigation Command Areas and the use of nutrients continues to be inadequate both in terms of quantity and proper

Table 1

Changes in productivity of selected crops 1949-50 to 1988-89

Crop	Average production in kg/ha 1949-50 to 1951-52	1986-87 to 1988-89	per cent increase in productivity
Rice	698	1541	120.6
Wheat	657	2053	212.5
Other Cereals	418	737	76.3
Pulses	431	537	24.6
Oilseeds	477	687	44.0
Cotton	89	180	102 2
Sugarcane	33136	60374	82.5
Potato	6786	15687	131 2

Source: Regional Office for Asia and the Pacific (RAPA), Food & Agriculture Organisation of the United Nations, Bangkok.

Table 2

Annual compound rate of production of some important crops and different states (1967-68 to 1986-87)

Annual Growth Rate %	Crops	States
5% and above	Wheat (5 48)	Punjab (6 57)
4 00-5 00	—	Haryana (4 42)
3 00-4 00	Rapeseed and Mustard (3.2)	UP (3 88), A P (3 45) Maharashtra (3 36)
2 00-3 00	Rice (2.54) Ragi (2,03), Sugarcane (2 63), Cotton (2 11)	Assam (2 86), Orissa (2 46) W Bengal (2 82), M P (2 31) Gujarat (2 01)
1 00-2 00	Tur (1 92), Jowar (1.24)	Bihar (1.69), Karnataka (1 91) Tamil Nadu (1 4), H P (1 15)
Below 1 00	Maize (0.98) Groundnut (0.82)	Kerala (0 95)

Source: Directorate of Economics & Statistics, Ministry of Agriculture

Table 3

Population, agricultural land area, extent of irrigation and per capita gross availability of cereals during 1987 in some countries of Asia-Pacific region

Country	Total Population (in thousand)	Agricultural Land (in thousand ha)	Net Irrigated Areas (in thousand ha)	Production of cereals (in thousand tonnes)	Per Capita gross availability of cereals (in kg)
Australia	16156	47105	1836	22081	1367
China	1086328	96976	44833	352306	324
DPR Korea	21834	2392	1180	11872	555
India	802698	140150	42[illegible]00	175638	219
Iran	51331	14830	5740	12562	245
Philippines	58039	7930	1480	13399	231
Thailand	53342	20050	3996	26207	493
Asia-Pacific	2819728	448328	135926	772100	274
World	5026277	1473699	227108	1742985	347

China and Iran were net importers of cereals to the extent 16.0 and 5 6 mt respectively
Source: Regional Office for Asia and the Pacific (RAPA), Food & Agriculture Organisation of the United Nations, Bangkok.

balance among them. The Government has established a network of around 500 static and mobile soil testing laboratories in the country, which should help to monitor soil health and promote the judicious use of nutrients. These should be selectively revitalized as model soil and plant health clinics and can go a long way in improving the crop productivity. China and India have similar magnitude of net irrigated area of around 42 m.ha However, during the year 1988, the nutrient use in China was 22 5 million tonnes compared with only 9.2 mt in India

China and India have similar magnitude of net irrigated area of around 42 m ha However, during the year 1988, the nutrient use in China was 22.5 million tonnes compared with only 9.2 mt in India. Unless we ensure adequacy of the building blocks of biomass in the root rhizosphere, it will not be possible for us to realise the production potential of improved crop varieties.

Unless we ensure adequacy of the building blocks of biomass in the root rhizosphere, it will not be possible for us to realise the production potential of improved crop varieties However, over a period time we have to reduce our reliance on agricultural chemicals by adoption of practices involving integrated nutrient and pest management

Developing Infrastructures for delivery of inputs, services and technologies: Timely supply of agricultural production inputs (seeds, fertilizers, pesticides, etc) in quality and quantity is an essential requirement for well managed agriculture There is a need to develop a strong network of physical infrastructure at disaggregated levels. Majority of the farmers are deprived of the benefits of improved farm tools and implements for crop production because they are constrained to buy them due to lack of finance or because small farm holdings preclude such options. In such situations it may be appropriate to promote group farming or the establishment of cooperative agro-service centres at disaggregated levels for promoting custom hiring and also for repair and maintenance of agro-machines

Enhancement of rural income and employment: Agricultural development in irrigated areas should be used as a means of producing more food as also an instrument that generates more jobs and more income. This should be feasible by evolving farming systems integrating crop farming with horticulture, animal husbandry, poultry, fishery and agro-processing. Resource–poor farmers have high potential for labour investment which needs to be exploited by involving this group which constitutes a major segment of rural population, in labour intensive agro-enterprises

Promoting Land Reforms : Agricultural growth is greatly linked with land reforms While on one hand effective steps have to be taken for implementing land reforms measures such as consolidation holdings, grant of tenurial rights to actual tillers, lar ceiling and distribution of surplus land to social weaker rural people; on the other hand, ne legislative measures have to be taken for preventir futher fragmentation of land holdings and diversion agriculturally productive land for non-agricultur purposes. It requires a close look into gross respon as well as mechanics of response to various lan reform measures in the country to understand whe and why the measures have succeeded and th dimensions of failure where they have not so as t take corrective measures It needs to be borne i mind that India's land system has been a fundament factor both in relation to the prevailing poverty an the progress of agriculture and, therefore, there is n way out but to give land reform measures a hig priority However, the fact remains that the legislativ measures have not been implemented to a desire extent in a larger part of the country Therefore, till breakthrough becomes possible in this regar agricultural production strategy needs to be devise so that the existing agrarian features an advantageously used for agricultural intensificatio and labour absorption

Streamlining of agricultural administration: Th success of agricultural development programm greatly depends on how meticulously th programmes of flow of techonology, inputs, credit price support and other allied services, have bee orchestrated from the national level to the villag level The managerial structure is therefore, crucial i

It needs to be borne in mind that India' land system has been a fundamental facto both in relation to the prevailing poverty an the progress of agriculture and, therefore there is no way out but to give land reforn measures a high priority. However, the fac remains that the legislative measures have no been implemented to a desired extent in larger part of the country.

the development of agriculture In general, th present managerial structure in the States is no adequte enough to do requisite justice to the tasks o planning, organising, staffing, directing an monitoring various agricultural developmen activities since it has not been developed keepin these tasks in view. There is a need to strengthen th state administrative structure to make it mor responsive to various tasks with accountability fo implementation and achievements from bottom t top levels in proportion to the authority vested in position

Rainfed agriculture

Inspite of the establishment of one of the large

irrigated infrastructures in the world, the food grain production and overall agricultural economy of India continues to be affected by fluctuations in monsoon and the performance of rainfed crops. It is, however, conceded that the technology for improving the dryland crop production has contributed to the upward movement of both production and productivity although not consistently, there are peaks and troughs depending upon the rainfall both in intensity and distribution. It must be recognised that the stability of foodgrain production in rainfed areas which account for about 65% of the cultivated land and contribute around 40% of the foodgrain production is vital. Therefore, realising the critical need for improving agricultural productivity of rainfed agricultural crops which in turn can contribute to the wellbeing of the vast masses of rural poor concentrated in these areas, the ICAR, started in 1970-71, an All India Coordinated Research Project on Dryland Agriculture with 23 centres representing major dryland regions of the country. The research efforts in this area were further strengthened by establishing a Central Institute for Dryland Agriculture during the Seventh Plan. The research in these projects have shown definite possibility for increasing and stabilising production in these areas. Crops and their varieties which are efficient user of rainfall and soil moisture have been

Table 4

Productivity (kg/ha) of important crops in some countries of Asia-Pacific region

Country	Rice	Wheat	C. grains	Potato	Pulses	Seed Cotton
Australia	6981	1516	1523	27179	923	3190
China	5304	3017	3262	11576	1286	2291
DPR Korea	7175	4037	3199	12993	900	1500
India	2487	1995	732	15968	498	600
Iran	3645	1188	1144	16357	679	1854
Philippines	2725	–	1182	10796	804	3067
Pakistan	2360	1735	987	9694	451	1667
Asia-Pacific Region	3407	2225	1772	13328	997	1396
World	3320	2314	2230	14872	797	1560

Source: Regional Office for Asia and the Pacific (RAPA), Food and Agriculture Organisation of the United Nations, Bangkok

Table 5 (A)

Yields (q/ha) of crops in national demonstrations for the year 1987-88

Crop	National average	Average yield in National Demonstrations	Highest yield in National Demonstrations
Rice	19 53	42 87	78 25
Wheat	20 02	37 48	54 00
Sorghum	7 62	37 86	58 37
Pearlmillet	3 78	18 54	35 00
Chickpea	6 29	11.31	30 20
Pigeonpea	6 85	16 57	18 00
Groundnut	8 55	17 52	35 50
Mustard	747	10 11	22 00

Source: Annual Report of the Department of Agricultural Research & Education, 1989-90

Table 5 (B)

State average yields (kg/ha) during 1986-89 under satisfactory management

Crop	Yield kg/ha
Rice	Tamil Nadu (4265), Punjab (4632)
Wheat	Haryana (3017) Punjab (3568)
Seed Cotton	Punjab (1491)
Sugarcane	Tamil Nadu (105600)
Potato	West Bengal (2152), Gujarat (2165)

Figures in parantheses are average yields (kg/ha) of latest three years.
Source: **Directorate of Economics & Statistics, Ministry of Agriculture.**

identified for each agro-climatic region. It has been shown that the cropping intensity which is currently of the order of around 100% could be increased to 150-200% in the dryland areas through inter-cropping and sequence cropping systems. More productive, stable and remunerative inter-cropping and sequence cropping systems have been identified for each region. Improved agronomic practices for each of the crops involved have also been worked out. With the use of low cost or non-monetary inputs, it has been possible to increase the productivity of dryland crops by 50 to 100%. With judicious application of fertilizers and a life saving supplementary irrigation, increase of the order of 100 to 200% has been registered. The yield increase from one supplementary irrigation of 5 cm has been of the order of 1-2 q./cm/ha.

Besides addressing itself to field crops, this project has brought attention to the development of marginal lands. Alternate land use systems are being worked out for improving the productivity of these areas. Agro-forestry, silvi-pasture, agri-horticulture, have multiple roles of food for rural homes, economic stability and conservation of marginal lands. In order to evaluate the effectiveness of rainfed agriculture technologies developed by the ICAR Institutes and its co-operating centres and its adoption by the farming communities representing different socio-economic strata of the rural population in different regions of the country, 47 model water sheds were implemented by the Central Soil and Water Conservation Research and Training Institute, Dehradun (UP) and the Central Research Institute for dryland Agriculture, Hyderabad. These projects have provided very useful information on socio-economic, cultural, technical, administrative, institutional, legal and legislative concerns which are the major bottlenecks for efficient dissemination of improved dryland agriculture technologies.

The dryland areas have the country's largest and most productive livestock. The best breeds of buffaloes, cattle, sheep, goat, camel and equines are native to these areas. In these areas livestock contribute more to the agricultural economy than in the irrigated areas and provide remunerative subsidiary or full time employment. These are insurance against recurring crop failures to the farmers. Technologies for improvement of livestock productivity specially by introduction of superior exotic inheritance through cross-breeding has been evolved in the case of cattle for milk, sheep for wool and mutton, and goat for milk, meat and mohair. The application of these technologies with the necessary inputs of feed and health cover can lead to larger increase in their production and thus help in ameliorating the economic deprivation of small and marginal farmers and landless labourers who mostly depend on livestock. The increase in production of coarse cereals, pulses and oilseed crops in these areas will help in availability of additional crop residues and oilseeds and pulses milling bye-products as feed resources for the livestock. Further diversification of land not suitable for cropping, to silvi-pasture or social forestry will also help in better feed resources both surface and top.

In the case of fisheries, technologies have been developed for induced breeding of carps and quality seed production throughout the year. The availability of quality seed and poly culture technology can enhance fish production even from water available for shorter periods. The water storage in dryland areas created for soil and water conservation and irrigation can be utilised for fish culture. Yields upto 4 to 5 tonnes/ha in a period of 5 to 6 months under intensive culture can be obtained. Sub-soil water in dry areas is mostly brackish. The utilisation of such water for brackish water fish and prawn culture is now a distinct possibility. Technology can be profitably applied for increasing brackish water prawn culture in these areas. Similarly, the soil affected by salt and alkali can be profitably utilised for fish culture.

Lessons

Some of the lessons emerging from the implementation of model watersheds could be highlighted as under and in case these are kept in view it will lead to the successful implementation of the national watershed programmes:

Peoples' participation in planning, implementation and management of the water-shed development programmes.

Core programmes at Government cost for providing ecological security and establishment of capital assets which will save the areas from weather aberrations. This will include engineering structures for safe disposal and storage of excess rain-water to be subsequently used as life saving irrigation.

Timeliness and precision are two key factors in improving in situ moisture conservation and its subsequent use for crop production. Farm power is more often a major constraint for achieving the above goals and can only be ensured through the village agro-service centres. Seed-cum-fertilizer drills, plant protection equipment and some other power sources could be stocked in these agro-service centres and made available to the farmers on custom-hire basis.

Crop production inputs like improved seeds, fertilizer, protection chemicals etc., should be provided on subsidized rates to the small and marginal farmers and on normal payment for the remaining farmers with large holdings. Their availability at right time and agricutural credit for their purchase should be ensured.

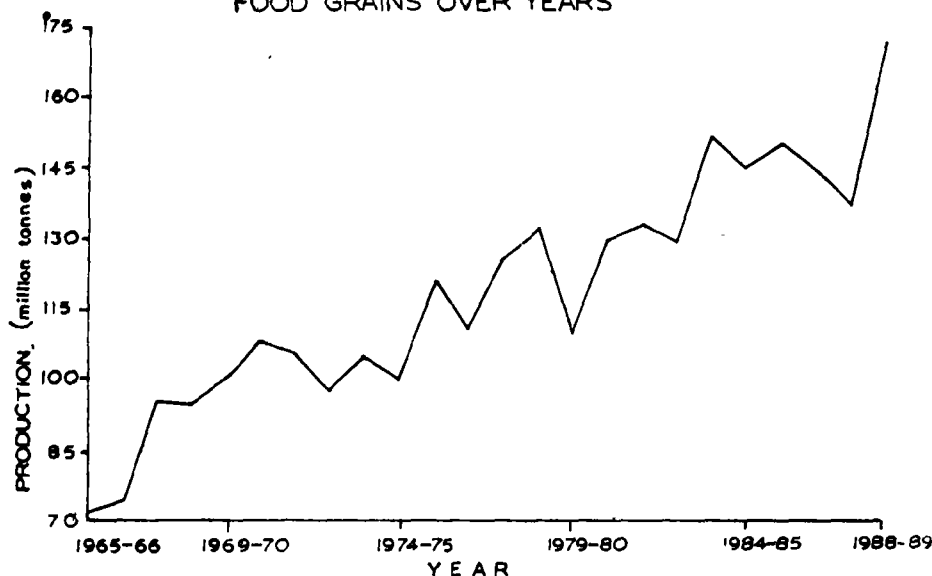
Administrative support for effective implementation, monitoring and evaluation of the dryland agriculture programmes is vital. The establishment of dryland agriculture/watershed development boards and councils at the state level and project implementation committees at the project sites with involvement of State government functionaries is essential for effective implementation

and continuous monitoring of these programmes.

In order to improve management capability of village communities in maintaining the capital assets in the dryland areas and also to ensure that the gains from these capital assets percolate to the entire village community, the establishment of village resource management societies and irrigation cooperatives is very important.

Depending upon the production capacity of the land resources, and the capacity to sustain future biotic populations, it is essential to establish an equilibrium between the biotic populations and the carrying capacity of the land resources. Degraded and marginal lands which are supporting uneconomic crop production should be earmarked for silvi-pasture and silvi-horticulture systems which could be both economical and ecologically stable.

situ moisture conservation and creation of water storage structures which contribute to stability in agriculture and sealing the areas against weather aberrations.

The country is very fortunate to be blessed with one of the richest natural endowments in terms of land, water and climatic resources. However, in view of the prolonged neglect, our capacity to manage these resources has eroded to a point that we have been realising only 30 to 40% of the yield potential of the improved varieties and associated technologies under irrigated and rainfed situations. In the case of irrigated agriculture, we have to re-orient our policies so that we are able to realise the full benefits that should accrue from one of the largest infrastructure in the world. As a policy, we should not be undertaking any more medium/major irrigation projects till we are able to administer adequately the

Promoting animal husbandry and fisheries programmes in the dryland agriculture areas for landless labourers for improving their employment and economic status. Water storage structures for excess rain-water, could be utilised for fish-culture and augmented pasture and feed resources can help to sustain the improved livestock production.

In order to provide protective canopies for the donor watersheds and saving the same from excessive grazing, villagers should be induced to adopt stall feeding of their livestock.

Supply of mini-kits with additional components of improved engineering tools for seeding, fertilizer placement and inter-cropping operations.

The experience, thus, gained in the model watersheds indicate a minimum one-time investment of Rs. 4000/- to Rs. 5000/- per hectare for amelioration of these degraded lands, before they can become responsive to agricultural production. The above investment can cover land-shaping for improved in

infrastructure thus far created. Our efforts in the coming years should be on exploitation of the groundwater resources where investments are much smaller and the water is at the command of the farmer and he is able to irrigate in line with the needs of the cultivated crops. In spite of very encouraging results at the agricultural experiment stations and in the model watershed areas under the direct supervision of scientists, we have not been able to make the desired headway in the rainfed agricultural areas on account of the socio-economic bottlenecks. However, in the background of the strategy setting outlined in the preceding pages, I have no doubt that we will be able to achieve the desired levels of productivity and fulfill our commitment for improving the quality of the life of rural communities. □

The author is former DG :ICAR, New Delhi.

Agricultural Export: present status and future strategies

Dr. S.S. Khanna

Stepping up of the export of agricultural items and improvement in their quality, is an imperative for bettering the rural economy and earning more foreign exchange. According to the author, the rate of growth of farm products can be increased substantially. Listing some steps, the writer, who is an agriculture expert, underlines the need for selective development of crops and areas with updated technology and inputs. Data-bank of crops, identification of targeted areas, market intelligence, vigorous promotional measures and creation of facilities for smooth flow of goods are the vital areas needing closer attention. The author lays special emphasis on maintaining quality of the products and a mechanism for steady monitoring. He also favours a long term commodity-wise policy of agricultural exports.

AGRICULTURE HAS PLAYED, and shall continue to play in the coming decades, a crucial role in the process of devleopment of our country During the last forty-three years of Independence, the country has achieved near self-sufficiency in foodgrains, which reflects the enormous promise and potential of Indian Agriculture The increase in foodgrains production since the advent of the First Plan in 1950-51 was of the order of 2.6 per cent per annum and we have been able to achieve production of 173 million tonnes in 1989-90 from a base level of 53 million tonnes in 1950-51. But there has to be substantial step-up in agricultural production and productivity and income and employment generation through crop diversification in coming years for the growing population, if we wish to see that our rural people lead an improved quality of life.

Our aim shall, therefore, be that the agriculture sector should provide: (a) necessary food and clothing for our people (b) feed and fodder for livestock, poultry etc., (c) raw materials for industries, (d) surplus to meet drought and unfavourable weather situations, (e) foreign exchange through agricultural export and (f) employment and income for rural and urban people.

In this article an endeavour has been made to deal with agricultural export– present status and future strategies.

Export planning

Exports of Agricultural commodities, in addition to providing the much-needed foreign exchange for the country, add to the competetiveness of production, productivity and quality in relation to other exporting countries. This enables realisation of economies of scale, and this benefits domestic consumers as well. Sustained exports help to modernise production, post harvesting, processing and marketing system and thus taking advantage of most recent technological advances in the network planning process

Needless to mention that agricultural export planning has not been developed in a systematic manner It is necessary to understand that exports are possible if we are able to produce the items for exports in a sustained manner and of the desired quality along with well coordinated promotion efforts. Above all, Government will have to evolve, initate and implement export promotion policy in an effective manner.

Product-wise policy

Commodity-wise policies for exports have to be formulated to bring forth necessary consistency in export policy over a long-term period. An effective system of market intelligence and research on agriculture export have to be developed. Captive farms in selected agro-climatic zones for different crops with the back up of science and technology should also be developed. Export of agricultural commodities needs to be regulated so as to safegaurd the interest of producers.

Performance

India has been occupying a prominent place in the export of certain commodities such as tea, coffee, rubber, jute, coir, tobacco, spices, cashewnuts, pickles, papads, guar gum, herbal, medicinal and aromatic products etc. In Table I, three years data of export of agricultural commodities are presented. The record of performance in the various products has been marked by fluctuations and no discernible trend of one commodity can be established.

Cashew export showed a decline of 9 6 per cent during 1988-89 in value although the volume at around 37,700 tonnes was higher by 4.4 per cent over the previous year's level. During that year there was severe competition from other edible nuts. However, export of cashew kernels during April-September 1989 showed a substantial increase of 35 9 per cent in value.

Exports of Agricultural commodities, in addition to providing the much-needed foreign exchange for the country, add to the competetiveness of production, productivity and quality in relation to other exporting countries. This enables realisation of economies of scale, and this benefits domestic consumers as well.

Export of spices was less in 1988-89 as compared to the previous year. During 1989-90 total export of spices was of Rs. 274.36 crores which was higher than the previous year. Spices exports have shown significant improvement during the Seventh Plan compared to the previous Plan. Another significant development during the last couple of years has been the increase in export of spices other than pepper Pepper used to occupy 81 per cent of total spices exported but during 1989-90 its share was only 58 per cent. This was primarily on account of improved export performance in respect of chillies, ginger, turmeric, curry powder, seed spices, spice oils and oleoresins. The last two spices showed an improvement of 34 per cent in terms of quantity and 13 per cent in terms of value.

Export of tobacco suffered a slight set back both in value and volume in 1988-89, as compared to the previous year. Anti-smoking campaign has some effect on the sale of tobacco.

Export earnings from tea in 1988-89 were slightly higher by 1.1 per cent in value over the previous year even though there was 2 per cent decline in volume. During 1989-90, earning from tea exports has been increasing. Tea prices in the world market have firmed up in view of tight global demand-supply balance.

Coffee export has been fluctuating markedly because of some International Coffee Agreement and also suspension thereof. During 1988-89, coffee export of 82.6 million kgs. was valued at Rs. 279.7 crores. In 1987-88 it was 88.7 million kg worth Rs. 263.2 crores. The modest increase in coffee earning during 1988-89 could be attributed to increase in unit value realisation of about 14.1 per cent during 1989-90.

Promising area

Export of marine products touched a new peak, rising from 97,900 tonnes valued at Rs. 525.1 crores in 1987-88 to 1,58,500 tonnes worth Rs. 632.5 crores in 1988-89. Thus, there was an increase of 61.9 per cent in volume and 20.4 per cent in value. There is scope for increasing the export further as the Japanese and U.S. consumers are developing a taste for farm fresh prawn. Fresh shrimp still has a leading share and frozen squid becomes the second item with 6 per cent increase both in volume and value.

During 1988-89, meat and meat products valued at Rs. 94.97 crores were exported as against Rs. 85.54 crores during 1987-88, thereby registering an increase of 10.4 per cent During the first six months of the 1989--April-September, meat and meat products valued at Rs 45.35 crores were exported which is 12 per cent higher as compared to the corresponding period of 1988-89.

Export of rice showed a marginal increase. From 3,71,600 tonnes valued at Rs. 324 6 crores in 1987-88, it rose to 3,75,600 tonnes, valued at 331 5 crores in 1988-89 which was about 1.1 per cent increase in volume and 2.1 per cent in value Export earnings during April-September 1989 showed a phenomenal increase of 91 1 per cent over the same period of 1988. World demand for rice (basmati) is expected to remain bright in future also.

Commodity-wise policies for exports have to be formulated to bring forth necessary consistency in export policy over a long-term period. An effective system of market intelligence and research on agriculture exports have to be developed. Captive farms in selected agro-climatic zones for different crops with the back up of science and technology should also be developed.

Export earnings from oil cakes showed an increase of Rs 113.7 crores in value and 81.6 per cent in volume during 1988-89. The increased production of oil seeds in the country and favourable international situation led to an increase in exports substantially during 1989-89 and first six months of the financial year 1989-90.

Export of Jute manufactures increased to 3.1 lakh tonnes valued at 249.9 crores in 1988-89 from 2 4 lakh tonnes valued at Rs. 242.8 crores in 1987-88. The marginal increase in export earning during 1988-89 was attributed to volume expansion but there was a

steep decline in unit value realisation. Among the agricultural products, export of fresh mangoes, fresh fruits and fruit juices range between 10,000 to 20,00C tonnes.

Future strategies

The Government is detemined to create conditions which will help in making exports comercially viable through upgraded technology, ensuring the supply of better quality of genotypes of agricultural crops, strengthening the infrastructure and simplifying procedures and decision making process.

Another significant development during the last couple of years has been the increase in export of spices other than pepper. Pepper used to occupy 81 per cent of total spices exported but during 1989-90 its share was only 58 per cent. This was primarily on account of improved export performance in respect of chillies, ginger, turmeric, curry powder, seed spices, spice oils and oleo-resins.

Even though there has been progressive improvement of the agricultural export over the years radical measures need to be taken up to compete at global level. Some of these are listed below :

(a) Research back-up has to be strengthened to supply genotypes/planting material to the group of farmers based on the requirements of a particular country/region. A quick survey of the importing country accompanied by Market Intelligence data analysis will have to be used as a basis for future planning an implementation.

(b) Promotional activities will have to b intensified through various Commodit Boards and Agricultural and Processed Foo Products Export Development Authority New Delhi.

(c) Intensive research on post-harvestin grading, packaging and quality improvemen of exporting material is required.

(d) Export incentives, training of personnel, ensuring smooth flow of trade, collation o information, financing, arranging fairs/ publicity and other aspects would help in maximising exports.

Export of marine products touched a new peak, rising from 97,900 tonnes valued at Rs. 525.1 crores in 1987-88 to 1,58,500 tonne worth Rs. 632.5 crores in 1988-89. Thus, there was an increase of 61.9 per cent in volume and 20.4 per cent in value.

(e). One of the most important aspects is ensuring coordination with various organisations both within and abroad.

(f) Necessary assistance has to be provided on matters such as communication, packaging, ware-housing, transportation and speedy customs clearance.

(g) There is the need to provide the exporters facility of testing of packages etc. Stringent measures have to be adopted to see that the material being exported is of the desired

Export of principal agricultural commodities from India

Rs. Crores

Sl No.	Major Commodity Head	Unit of Quantity	April to March 1987-88 (RP) Qty	April to March 1987-88 (RP) Value	April to March 1988-89 (RP) Qty.	April to March 1988-89 (RP) Value	April to September 1989 (P) Qty.	April to September 1989 (P) Value
1	2.	3.	4.	5	6	7	8.	9.
1	Meat & Meat preparation	Value	–	85 54	–	94 47	–	45.35
2	Marine Products	000T	97 9	525 11	158 5	632 50	49 2	295.52
3	Rice	'000T	371 6	324 57	375.6	331.46	306 4	297.17
4	Wheat	'000T	246 0	35 46	15 8	2 99	11 7	2.14
5	Vegetables & fruits							
	(a) Cashew Kernels (incl CNSL)	'000T	36 1	306 70	37 7	277 20	26 9	210.60
	(b) Others	Value	–	150 79	–	164 40	–	99 00
6	Misc processed foods (incl processed fruits and juices)	Value	–	65 90	–	121 12	–	80.17
7	Sugar & Molasses	'000T	2 3	0 76	52 4	7 04	96 2	23 99
8	Coffee & Coffee substitutes	Mill Kg	88 7	263 22	82.6	279 71	53 9	202.11
9	Tea & Mate	-do-	197 3	592 37	193 4	596.96	98.0	383.82
10	Spices	'000T	83 1	309 29	93 8	250 80	52 1	144.97
11	Oil Cakes	'000T	684.2	173 8	1242.6	370 43	1015 6	255 74
12	Tobacco unmanufactured & refuse	'000T	60 7	109 32	45 1	102 93	29 8	71 42
13	Cotton Raw	'000T	73 0	95 49	13 5	28 02	32.8	68.90

Source: Annual Report (1989-90) Ministry of Commerce

quality. It would do more damage to export in the long run if poor quality material is exported. The Export Inspection Council of India should be involved closely and the organisation needs to be further stengthened.

(h) A system of steady monitoring of all aspects of agricultural exports should be done

There is the need to provide the exporters facility of testing of packages etc. Stringent measures have to be adopted to see that the material being exported is of the desired quality. It would do more damage to export in the long run if poor quality material is exported. The Export Inspection Council of India should be involved closely and the organisation needs to be further strengthened.

through a built-in mechanism. An Advisory Cell on Agriculture Exports should be set up in the Ministry of Commerce. It should be assigned the job to conduct studies in relation to agriculture exports and its recommendations should be discussed at Inter-Ministerial level.

(i) Transhipment of perishable products should be done without delay.

(j) Indian exporters of agricultural commodities are normally not willing to take risk. Some Governmental support and guidance is required in this regard.

(k) For developing an understanding of export of agricultural commodities, the necessary re-orientation in planning is required. Expertise available in this direction is meagre. A centre should be established in India with a time-bound farme to evolve a comprehensive network approach on all commodities.

(l) Firms/cooperative societies/organisations involved in agricultural export should be given incentives/custom concessions and international linkages/contact information etc.

India has a vast potential in enhancing the export of agricultural commodities. So far these constituted only about 20 per cent of the total export earning but can readily be enhanced at a growth rate of 10 per cent per annum if concerted efforts are made. Organisations like Agricultural and Processed Food Products Export Development Authority, various Boards (Coffee, Tea, Spices, Tobacco, Rubber, Coir, Coconut), Indian Institute of Foreign Trade and others should be involved to prepare a comprehensive study for the benefit of exporters. □

The author is Adviser (Agriculture) in Planning Commission, New Delhi

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FINANCIAL HIGHLIGHTS AS AT MARCH 31, 1990

BALANCE SHEET	31-03-1990 * Rs. '000	31-03-1989 * Rs. '000
ASSETS		
Cash and Due from Banks	829323	277610
Investment in Securities, etc.	878421	826100
Loans and Advances (less provision for loan losses)	2306182	2173927
Property and Equipment	70109	68443
Other assets	165332	154040
Total Assets	**4249367**	**3500120**
LIABILITIES		
Demand Deposits	567049	406467
Savings and Time Deposits	3084694	2696374
Due to Banks, etc.	268636	119934
Other liabilities	190933	164446
Total Liabilities	**4111312**	**3387221**
RESERVES		
Legal Reserves	12840	6731
Retained Earnings & other reserves	125215	106168
Total Reserves	**138055**	**112899**
Total Liabilities and Reserves	**4249367**	**3500120**

PROFIT AND LOSS ACCOUNT	31-03-1990 * **12 Months** Rs. '000	31-03-1989 * **15 Months** Rs. '000
INCOME (less provision for loan losses)		
Interest and Discount	599438	704798
Commission and Brokerage	58068	68331
Net Profit – Sale of Investments, etc.	21953	–
Other Income	1093	2749
Total Income	680552	775878
EXPENDITURE		
Interest paid – Deposits, Borrowings, etc.	520078	578535
Salaries and Allowances	18110	16151
Other Operating Expenditure	111817	147539
Total Expenditure	650005	742225
Balance of Profit for the Year	**30547**	**33653**

* audited

ADVERTS

Modern Technology for Villages

Biman Basu

The rapid strides made in the field of Science and Technology will have no meaning unless the fruits of progress reach the rural masses. In this study, the author takes a close look at the state of affairs in the villages, deprived of even the basic necessities of life, while the urban areas enjoy all the comforts, because of the scientific and technological advance. The writer, a Science commentator, refers to the frightening features of the existing rural/urban divide and says that there has been a visible change for the better in the rural scenario, thanks to the gradual percolation of the benefits of modern scientific research to the common man. The author narrates how modern technology is used in the villages to meet the various needs of the people, right from supply of drinking water.

INDIA IS A LAND OF paradoxes We have developed the technology to build and launch space satellites and run nuclear power stations, yet most of our villages are without electricity and have to do with bullock carts as the only mode of transport. While our cities have the most advanced health care facilties like CAT-scan and ultrasonography, many of our villages lack even the basic health care services But the picture is changing The fruits of modern scientific research are gradually percolating to the common man in the village And it is happening in many ways

Drinking water is the major problem in most of our villages Every year tens of thousands of people die of diseases caused by polluted water In several parts of the country, village women have to travel miles to fetch water for their daily chores Now space technology has come to their help Pictures taken from space are now helping geologists in locating underground water resources reliably Already the Department of Space, in association with the concerned State Government agencies like State Remote Sensing Application Centres, has completed the task of preparing a hydrogeological map of the country using satellite pictures Maps for 447 districts covering the entire country are now available to users such as State Public Health Engineering Departments, State Ground Water Departments and Central Ground Water Board These maps, based on satellite data, serve as the starting point for identifying underground aquifer for providing drinking water to rural population

Recurrent failure of monsoon and depletion of ground water table create severe drought conditions in many parts of the country Since ground water is sub-surface phenomenon, there is need to understand the sub-surface hydrological conditions through surface expressions Aerial photographs have been in use for ground water survey for several years before the coming of space technology Today satellite remote sensing data are widely used for deriving ground water exploration parameters especially through visual interpretation technique

Ground water exploration

In general satellite image interpretation in conjunction with aerial photographs and conventional methods of surveying helps in selecting areas with ground water potential This is now being carried out by many organisations Using maps and data sent by the Indian Remote Sensing Satellite IRS-1A, success rates between 88 and 95 per cent for striking water against 45 to 55 per cent using only conventional techniques have been reported

Correctly locating underground water, however provides only part of the solution to the drinking water problem In Gujarat and Rajasthan, for example, underground water is brackish and unfit for drinking A new technology called Reverse Osmosis, is being used to turn the brackish water into potable water In several problem villages in Gujarat and Rajasthan and some coastal areas of the South women no longer have to trudge long distances to fetch their daily need of potable water More than 3 desalination plants based on reverse osmosis ar

now in operation in the country which are helping villagers to get clean drinking water right at their doorstep.

High technology is helping our rural economy in many other ways. Images of croplands taken by IRS-IA can now tell farmers and district officials about crop diseases and pest infestations early enough to take timely remedial action. Satellite pictures are also being used for forecasting floods in rivers well in advance.

Disaster warning

Space technology is even being used to save human lives in our coastal villages which are frequently ravaged by cyclones. The INSAT-based Disaster Warning System can automatically trigger an alarm to warn villagers of an impending cyclone and thus help in timely evacuation of people from the threatened areas. This unique system has helped in minimising the loss of human lives in some of the severest cyclones seen in recent years

One of the most far-reaching changes brought about by modern technology in our villages is visible in the form of television which has reached the remotest corners of the country, thanks to INSAT Satellite technology has already made it mark as an effective medium of mass education in the rural sector. Some 8000 direct reception sets installed in villages spread over the country bring programmes in regional languages on health, animal husbandry, agriculture and family welfare for the benefit of our village folk most of whom cannot read or write

Modern technology is also helping make our villages more accessible through better telecommunication facilties One of the main hurdles that came in the way providing reliable telecommunication services in Indian villages, where 75 per cent of its population lives, has been adverse climate. The imported or even Indian made equipment based on imported technology simply could not withstand the heat and dust of our villages Another problem area was the low demand of lines in rural areas. Commercially available telephone exchanges were too large and expensive.

To overcome these problems, Indian technologists took up a few years ago the task of designing a totally indigenous, reliable, small rural exchange which could withstand the rigours of the Indian climate and work without airconditioning or climate control. Today several indigenously developed digital rural exchanges are in operation. The ultimate goal is to provide a public phone in almost every village so that no one, in any part of the country, is farther than 5 kilometres from a telephone

A satellite-based rural telegraph network is also under implementation to provide efficient and cost-effective telegraph service to villages in the hilly North-Eastern states. Better accessibility through improved telecom facilities can be a key factor in catalysing the economic uplift of our villages.

Modern scientific knowledge is also helping our villages indirectly. Cattle and buffaloes are used for a variety of purposes in villages and therefore form an important element in India's rural economy. The country has one of the largest population of cattle and buffaloes, but their productivity is lôw Efforts at genetic improvement in the past have been confined mainly to crossing with exotic breeds. But this is a slow process as it takes 13 to 18 months for a cow or a buffalo to give birth to one calf. Biotechnological techniques such as induced multiple ovulation and embryo transfer have enabled a single cow to produce as many as 25 calves in a year in some cases. The technique is simple and can be used to produce a large number of superior calves in a short time, as the calves are born to surrogate mothers after embryo transplantiation After the launching of the project on embryo transfer in 1987, about a hundred calves have been born of surrogate recipient mothers. These developments will not only help boost milk production but also substantially improve livestock quality in our villages.

Computerisation

Computers are at present widely used in our country for a variety of applications, but their use is mostly confined to big towns and cities Computerisation of many of our public utility services such as banks, life insurance, railway and airline booking and even electricity and water billing have brought sea change' in the working of these services Private and public sector industries and business houses have also gone in for computerisation for better inventory and office management and control. But computers are yet to make their mark in our villages For one thing, computers need assured power supply and dust and humidity-free environment to work efficiently. Seconly, computer literacy is almost non existent in our villages.

These shortcomings notwithstanding, computers can substantially boost our village economy at least by way of more efficient resource management, maintenance and regular updating of land revenue accounts and even management of agricultural inputs depending on soil types and crops The use of computers for weather forecasting has already been acknowledged. Correct forecasts of rain can not only prevent crop damage due to early sowing, it can boost production by way of correct timing of the sowing Computerised records can even help cattle breeders in villages in selecting the right type of semen for artificial insemination.

Indeed, the computer today, like space satellite and biotechnology, is a modern day Genie, always ready to serve us. Prudently used and commanded, it can be a powerful catalyst to speed up rural development in the country. ☐

The author is Editor, "Science Reporter'

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Rural reporting: miles to go

Bharat Dogra

Rural reporting is the ugly duckling of our journalism family Shorn of glamour and political hum-drum spawned in cities, events in the country-side flow on quietly and more often than not lose their trail in the arid expanse of apathy. This outlook must change, feels the author, who has acquitted himself in the subject at an early age. The rural reporter, he says, is the vital link between the possibility and the reality of the developing countryside. He is the watch dog. He takes up the cudgels for the deprived. He weilds his pen to protect the rights of the mute multitude. The author speaks some home truth for the benefit of the top echelons in the field to give rural reporting its due share. Alongwith various incentives, there is also the need for providing adequate protection to journalists in small towns to carry on their job with honesty and on a sustained basis.

THE ADAGE THAT REAL India lives in villages continues to hold true despite the industrialisation and urbanisation of recent times A very large percentage of people continue to live in villages, and in addition a significant percentage of people living or working in cities continues to retain close links with villages. In the field of journalism, therefore, the importance of rural reporting should be self-evident

However, there is a tendency in journalistic circles to relegate rural reporting. Some lip sympathy may be paid and some journalists going to villages regularly for reporting may get a pat on their back, but rural reporting generally remains quite low in the list of overall priorities. Only on some special occasions, (such as at the time of elections or kisan rallies) having political implications, it is considered important to send reporters regularly to rural areas.

Political reporting generally gets the highest importance in our newspapers However, only a person in close touch with the changes in rural areas can have a firm grip on the likely directions of political change. Thus the best political reporting is likely to be done by those reporters who visit villages regularly and are therefore in close touch with the changes taking place there Those who try to come to grips with the rural reality only on the basis of election time visits can hardly be expected to do a competent job.

However, this is stated here only to highlight the importance of rural reporting. By saying this we do not mean that the main aim is to provide the basis of

making political forecasts. There cannot be any doubt that the main role of rural reporting is to draw attention to the real social and economic problems of the rural people, specially the weaker sections among them, and to evaluate the measures which are being adopted to remedy the problems and improve the socio-economic condition of the weaker sections.

There cannot be any doubt that the main role of rural reporting is to draw attention to the real social and economic problems of the rural people, specially the weaker sections among them, and to evaluate the measures which are being adopted to remedy the problems and improve the socio-economic condition of the weaker sections.

There do exist programmes for improving the socio-economic condition of weaker sections in rural areas, but the urgency which is accorded to these programmes depends on the perception of the problems they seek to tackle. For example, one view that is put forward is that there are very few land holdings above the ceiling limit, and so there is very limited scope for land redistribution. Another view advocates the need for large-scale land redistribution keeping in view the inequalities. Which of the two views will prevail ?

Watch-dog role

This may depend to a large extent on the relative strength of the various political groups, but rural

No matter how well-intentioned the government may be in formulating its plans and strategies for helping the weaker sections in rural areas, these may get distorted due to the influence of certain vested interests. Some of these exist within the villages and they do not want the benefits to reach the weaker sections. Rather they try to corner as much of the benefits themselves as possible, making full use of their influence and wide reach.

reporting can play an important role by bringing to light the reality of those areas where large-scale land inequalities exist and where a large number of workers continue to be exploited by a few big landowners. If such authentic reports appear regularly in newspapers and magazines, then it will become difficult to ignore this reality even for those who want to do so. Thus journalists can give the desired support to land reform efforts.

Similarly, for bonded labour. One view held by some is that this practice does not exist on a large scale, and hence the programme for the release and rehabilitation of bonded labourers should not get much attention or a substantial financial allocation However, if newspapers and magazines publish authentic reports about the existence of this system in several parts of the country (and in several sectors of the economy) and the distress caused by the existence of this practice, then the need for adequate provisions for the programme of the release and rehabilitation of bonded labourers will have to be accepted even by those who want to neglect it. In this way, journalists can help the cause of fighting the system of bonded labour.

From time to time the government starts poverty alleviation and welfare schemes. Are the details of these schemes in conformity with the ground level reality, or do these need to be reframed in view of the practical problems these are likely to encounter at the ground-level ? Reporters by their regular visits to

To study and report on the interaction of these vested interests on the stated aims and objectives of the government's policies is one of the most challenging and exciting tasks for rural repoters. If they perform this task in a capable way, they can play an important role in checking the spread of wasteful and harmful strategies or programmes of development. They will also be helping farmers by warning them in time about expensive and unsuitable inputs which could become a big economic burden for them and lead to their increasing indebtedness.

the concerned villages and talking to various sections of people can find out the truth. Similarly, they can play a useful role in monitoring the implementation of these programmes, the extent of misuse of funds, corruption etc Wherever good work is being done, this should also be highlighted.

Education and health are the two most important areas from the point of view of the welfare of our people. But often a big gulf exists between the claims of educational and health programmes and the actual achievements. By closely and carefully following the progress of these programmes in some villages, rural reporters can help in the correction of several distortions and inadequacies in these programmes.

Checkmating vested interest

No matter how well intentioned the government may be in formulating its plans and strategies for helping the weaker sections in rural areas, these may get distorted due to the influence of certain vested interests. Some of these exist within the villages and they do not want the benefits to reach the weaker sections. Rather they try to corner as much of the benefits themselves as possible, making full use of their influence and wide reach.

The second set of vested elements consists of industrial and commercial interests. Regardless of the utility or affordability of their products for small and low resource-based farmers of India, these people exert pressure to introduce those strategies and programmes as may involve liberal use of their products.

To study and report on the interaction of these vested interests on the stated aims and objectives of the government's policies is one of the most challenging and exciting tasks for rural reporters. If they perform this task in a capable way, they can play an important role in checking the spread of wasteful and harmful strategies or programmes of development. They will also be helping farmers by warning them in time about expensive and unsuitable inputs which could become a big economic burden for them and lead to their increasing indebtendness.

For competent rural reporting, regular visit to villages is necessary but not a sufficient condition. Field work should be backed by careful and painstaking study in the library.

The reporting skills of the journalists have to be backed by fairly upto date knowledge about the agro-based industrial interests, the products they are trying to sell and how useful these products are likely to be in Indian farming conditions, specially for small and marginal farmers.

Well versed

For competent rural reporting, regular visit to villages is necessary but not a sufficient condition. Field work should be backed by careful and painstaking study in the library.

Regardless of the existing difficulties, some dedicated persons and organisations are doing useful work. Rural reporting also has a key role in highlighting this work, and informing others about it. By telling people in various parts of the country about each other's work, rural reporting can help those engaged in such efforts. Journalists can also extend their support and help in such work.

In more and more villages, the number of people struggling to secure their legal rights is increasing. These are subject to frequent repression. Rural reporters can help such struggle by highlighting the just legal demands. They can also help by reporting courageously about repression on such struggle, because fear of such report will act as a deterrent for the oppressive forces.

Clearly then, rural reporting has a very vital role to play in the overall efforts for egalitarian and just changes in villages which will help the farm workers, artisans and small peasants.

Twilight zone

However, the question is to what extent is this potential being realised at present ? Unfortunately, the answer is that while good reports on various aspects of rural reality are no dobut published from time to time, only a small part of the potential that exists for honest and capable rural reporting is being realised at present.

One of the reasons already pointed out at the outset is that rural reporting does not get the attention it so clearly deserves at top levels in the profession. Due to this attitude, city-based journalists do not get adequate opportunities to get seriously and deeply involved in rural reporting, and small town or 'kasba' based journalists engaged in rural reporting do not get adequate exposure in the city newspapers.

Rural reporting has a very vital role to play in the overall efforts for egalitarian and just changes in villages which will help the farm workers, artisans and small peasants.

As for the journalists working for small town newspapers, they lack resources as well as adequate protection to be able to perform their work in an honest and capable way on a sustained basis.

Despite several hardships, some journalists have nevertheless made a meaningful contribution in the area of rural reporting. However, much more remains to be done. More important than individual achievements are changes in the system which will enable a large number of journalists to make good contribution in this field. Leaders of the profession of journalism should give a serious thought to this question. □

The author is Editor, N.F.S., India, New Delhi.

> *No great change can be brought about merely by governmental functioning, although that is important, and we aim at great changes. Therefore, it is necessary that community schemes should be based on the intimate co-operation of the people.*
>
> **Jawaharlal Nehru**

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Land reforms: an overview

THE LAND REFORMS POLICY adopted since Independence aimed at restructuring agrarian relations to eliminate exploitation and bring about more equitable distribution of land. To attain this objective, the following measures were initiated:

* Abolition of intermediary tenure
* Regulation of rent and provision of security of tenure to tenants and sharecroppers with the ultimate objective of conferring ownership rights on them
* Imposition of land ceiling on agricultural land holdings and distribution of surplus land to landless agricultural workers and small land holders
* Consolidation of agricultural holdings.
* Updating and maintenance of land records

There are a few isolated pockets where intermediary tenures have not yet been abolished These include Zamindari over water rights in Bhagalpur District of Bihar, Communidades in Goa, Jotedaries in Meghalaya, personal service tenures under the religious and charitable institutions of public nature known as Trust Estates in Orissa, some isolated pockets in Uttar Pradesh, devasthan inams in Maharashtra etc In some States, the legal measures for abolition of intermediaries have been challenged and are pending in the High Courts/Supreme Court.

Tenancy reforms

As regards tenancy reform measures, legislative provisions have been made in many States providing for conferment of ownership rights on tenants or for allowing cultivating tenants to acquire ownership rights on payment of a reasonable compensation to the landlords Some States have acquired ownership of land from the landlords and have transferred them to the tenants who have to pay a certain amount or premium to the State Adequate provision to confer ownership rights on payment does not exist in some States, such as Andhra Pradesh (Andhra, area), Haryana, Punjab, Tamil Nadu and West Bengal (in respect of Bargadar). In most of the remaining States, barring some of the North-Eastern tribal areas, ownership right has been given to the general body of the tenants through one measure or the other The national policy however permits land owners who are members of Defence Services, widows unmarried women, minors and persons suffering from physical and mental disability to lease out land to tenants without loss of ownership. Even in States which still do not provide for conferment of ownership rights on tenants, sub-tenants and sharecroppers, provisions for security of tenure have been made.

Three important guidelines were laid down in the Five-Year Plans for the reform of tenancy. These are:

- Rent should not exceed the level of 1/5th to 1/4th of the gross produce.
- The tenants should be accorded permanent rights in the land they cultivate subject to a limited right of resumption to be granted to the land owner.
- In respect of non-resumable land, the landlord-tenant relationship should be ended by conferring ownership rights on tenants

Implementation of these measures during the past seven Five-Year Plans has revealed the following weaknesses :

* Some States like Punjab, Haryana, Tamil Nadu, Jammu and Kashmir and Andhra area of Andhra Pradesh have not fixed fair rent The procedure prescribed under several tenancy laws for fixation of fair rent is protracted In any case, provisions regarding fair rent are not effective enough for the tenants to enjoy the security of tenure
* Even where the law provides for the security of tenure, it is extremely difficult for the tenants to claim tenancy rights successfully because most of the leases are oral and informal The 1961 census estimated that about 82% of tenancies in the country were insecure. Though some improvement in the condition of such insecure tenancies occured in a few areas thereafter, majority of the existing tenants have not derived much benefit from the provisions in tenancy laws The tenants fear that if they demand their rights under the law, they would be thrown out of the land and would be subjected to various atrocities against which administration would be able to protect them.
* Where security of tenure has been provided in the law to tenants and sharecroppers, its effectiveness depends upon the following factors:

(a) Definition of the term 'tenancy'.
(b) The circumstances in which the land owners

are allowed to resume tenanted land for personal cultivation.

(c) Definition of the term 'personal cultivation'

(d) Provision for regulating voluntary surrender of tenancy; and

(e) Status of land records.

There is no provision in the tenancy laws of some States for conferment of ownership rights on tenants in respect of lands cultivated by them. No estimate is available for the country as a whole of the total number of tenants who were entitled to purchase onwership rights under the various State laws, of the number of cases still pending and of the number of tenants who have been ejected from their lands in accordance with the law. But, the general impression is that a very small percentage of the total number of tenants, who were entitled to purchase ownership rights succeeded in actually acquiring it. The landlords exerted pressure on the tenants to make the provision of right of purchase ineffective. In many cases, the purchase was eventually declared ineffective, as the tenants failed to pay the purchase price.

Ceiling on agricultural holdings

One of the basic land reform objectives was to bring about a more equitable distribution of land. The main instrument for realising this objective was the imposition of ceiling on land a device which permits a landlord to retain certain amount of land (ceiling), remainder or excess being earmarked for redistribution among the landless. It is the size of the ceiling that determines how far-reaching the programme might be. In line with the prescription of the Five Year Plans, laws on imposition of ceiling on agricultural holdings were enacted by serveral States during the 50s and 60s. These were implemented with varying degrees of effectiveness in different States. But the ceiling fixed by these laws was very high in many cases and the exemptions from the ceiling too many. Besides, there were many loopholes in the laws that rendered their implementation difficult. In order to bring about a certain degree of uniformity in ceiling operating in various parts of the country, the national guidelines on land ceiling were evolved in 1972 after a Conference of Chief Ministers of States. The level of ceiling applicable to a family, as recommended in these guidelines, varied from 10 to 18 acres for the best category of land capable of producing two crops a year, to 54 acres of dry land and certain types of orchards. Accordingly, laws have been enacted all over the country except in Meghalaya, Nagaland, Arunachal Pradesh and Mizoram where communal ownership in land predominates. There are as yet no ceiling laws in Andaman and Nicobar Islands, Goa, Daman and Diu and Lakshadweep.

Judged by the quantum of land declared surplus, this reform measure has failed to achieve any substantial impact. The total area declared surplus so far has been around 73 lakh acres only (which is less than 2% of the cultivated area) of which around 46 lakh acres has been distributed. The distribution of the remaining area of land declared surplus is held up due to litigation.

According to the agricultural census of operational holdings, the operational holdings below 2 hectares have gone up over the years but skewed distribution of land among different classes of operational holdings still persists. The number of holdings below 2 hectares has gone up from 49.63 million in 1970-71 to 66.6 million in 1980-81. They constituted 74.5% of the total holdings in 1980-81 but operated only 42.76 million hectares or 26.3% of the total operated area. Against this, holdings above 10 hectares have come down from 2 77 million in 1970-71 to 2 15 million in 1980-81. They constituted 2.4 of the total holdings in 1980-81 but operated as much as 37.13 million hectares or 22% of the total operated area. This is sufficient to show that the implementation of land reforms relating to ceiling of agricultural holdings have not made any appreciable impact on the land distribution. This is also corroborated by the fact that the total land declared surplus is far short of land which was estimated to be surplus on the basis of various national surveys. The surplus area estimated on the basis of certain assumptions in respect of the ceiling limits for each State were as follows: *

The declared surplus is much less than the estimated surplus on account of the following reasons :

* Provision for holding land upto twice the ceiling limit by families with over five members;
* Provision to give separate ceiling limit for major sons in the family.
* Provision for treating every share-holder of a joint family under applicable personal law as a separtate unit for ceiling limits.
* Exemption of tea, coffee, rubber, cardamom, and cocoa plantation and of lands held by religious and charitable institutions beyond normal ceiling limits.

* 16th round of NSS (1960-61)	..	8 87	million hectares
Agricultural Census (1970-71)	..	12.10	— , —
26th round of NSS (1971-72)	..	4 80	— , —
Agricultural Census (1976-77)	..	8.88	— , —
Agricultural Census (1980-81)	..	5.95	— , —
Actually declared surplus sofar	..	2.99	— , —

- Benami and farzi transfers.
- Misuse of exemptions and mis-classification of land.
- Non-application of appropriate ceiling to lands irrigated by public investment

It would thus be seen that both on account of range of ceiling agreed upon and various loopholes permitted in the ceiling laws, it has not been possible to acquire sufficient surplus land for re distribution. In any case, whatever land has been declared surplus and is free from encumbrances or litigation, has virtually been distributed. In the circumstances, in the Eighth Plan, there is virtually no land free from encumbrances which is available for distribution The programme for redistribution of land can be sustained only if fresh initiatives are taken for augmenting the availability of surplus ceiling land

A policy pronouncement has been made that surplus ceiling land will be distributed among the landless people belonging to SCs and STs. The national guidelines drawn up in 1972 recommend that while distributing surplus land, priority should be given to the landless agricultural workers, particularly those belonging to SCs and STs. Most State ceiling laws do include in the priority list landless persons belonging to SCs and STs, but highest priority is not assigned to such categories in all State laws. The general trend of distribution of surplus ceiling land has been that roughly 50% of the surplus land has gone to SCs and STs while the remaining 50% has been assigned to rural poor belonging to other social groups. Some time back, a decision was also taken by the Government that 40% of all future allotments of surplus ceiling/ Government/Bhoodan land should be made to the eligible women beneficiaries with a view to providing greater access to women in land

There are widespread complaints that lands allotted to the rural poor under the ceiling law are not in their possession. In some cases it has also been alleged that *Pattas* were issued to the beneficiaries but possession was not delivered in respect of land shown in the Pattas. In many cases, corresponding changes in the record of rights were also not made in respect of the lands allotted to rural poor. It has also been the experience that rural poor allottees of surplus ceiling land are dragged into litigation by the erstwhile land owners against whom they are unable to defend themselves. The allottees of surplus ceiling land are also harassed and prevented from cultivating their land. While States have been advised from time to time to ensure that the allottees of surplus ceiling land are not dispossessed, there has been very little improvement in the situation.

Utilisation of land

The land allotted under the ceiling law is invariably of a poor quality and requires heavy investment and labour to make productive use of it. Rural poor do not have resources for this purpose. Under the Central sponsored scheme for finanical assistance to ceilin land allottees, Rs. 2500/- per hectare is made availabl to the allottees for this purpose. It ha however been seen that States have not bee coming forward to claim funds under the schem since they have to contribute 50% as matching shar A large number of allottees, therefore, have not bee able to benefit from the scheme. Besides, the scale c assistance provided under the scheme is extremel inadequate. For the kind of land that is allotted to th rural poor, an investment of around Rs. 10,000 pe hectare would be required to make productive use o the land, Under the guidelines for employment i Rural Works Programme, it has been laid down tha the development of lands allotted to the rural poo under the ceiling law can be taken up on a full subsidised basis In spite of this provision, States have not been taking up projects for development of lands allotted to the rural poor under the surplus ceiling law The rural poor are also unable to get regular and timely inputs, particularly credit, due to which they are entangled in debt bondage relationship. There is also no arrangement for providing consumption credit to the rural poor during the lean periods when no alternative employment is available.

Land tribunals

It is generally believed that, in the wake of the abolition of intermediary tenures and imposition of land ceiling, land owners took recourse to large scale *Benami* and *Ferzi* transactions in land. This has made the search for surplus land considerably more difficult than it otherwise would have been. The problem was also compounded by the fact that *Benami* is a legal form of transaction in property and only recently legal provisions concerning *Benami* transaction have been amended. There are frequent references and allegations both in Parliament and outside mentioning how land owners had evaded ceiling law by transfering land in the names of relatives, farm servants and even non-existing entities. The identification of such lands is not easy. It is not enough merely to show that a transaction is *Benami*, it has also to be proved for the purpose of land reforms law that such a transaction was made with the objective of evading or avoiding effect of land reforms. There is an overwhelming reliance on documentary evidence in our judicial system. As a result, it is very difficult to prove the *malafide* of *Benami* transaction. Since the thrust of all and reforms is on the recognition of the right of one who is in cultivating possession of the land, one practical way of circumventing the effects of *Benami* transactions can possibly be to prove cultivating possession. This can be done not by documentary evidence of possession but by ground level investigations. Here again, one encounters a number of practical difficulties. It is not only enough for the administrative machinery--even if it be a judicial officer-to specify that a person is in cultivating possession of the land. It is also necessary to prove

this fact to the hilt in the appropriate court or ribunal. In the absence of documentary evidence it can only be done by oral evidence or witnesses In the conditions of rural society, it is very difficult for the enants or the sharecroppers to prove his claim to possession of land on the basis of evidence of witnesses, when he is arrayed against the more nfluential and resourceful land owners

Homestead rights

There are a large number of landless persons who lo not have shelter of their own. They either live in a house constructed on the land of others or provided y land owners in return for some forced labour Some of these persons do not even have land to construct a house while others may have small patch of land but no resources to build a hutment There is a cheme under which developed house-sites are llotted to house-less rural poor either on Government and or land acquired specifically for this purpose ome States have also made legal provisions for rotection against eviction of those who are living in ouses built on lands belonging to others But all tates do not have such a protective legislation Even 1 States which have enacted this legislation, its pplicability is confined to cases occurring prior to he date specified in the Act This specified date as expired long ago. A large number of cases have ow come up which remain uncovered by this rotective legislation Provisions have also been nade in some State laws that house-site/homestead llotted to the rural poor shall not be alienated or ansferred without Government permission But hile making these provisions [illegible] as not been taken to [illegible] rights [illegible] elonging to tribals [illegible] he protective provisions [illegible] in State laws gainst alienation of their land

Land records

Updated land records are crucial for implementation land reforms measures and various rural evelopment programmes The Seventh Five Year an laid a renewed emphasis on the need for ientific survey of un-[illegible] lands recording ghts of tenants and share-croppers, strengthening revenue machinery at the grassroots supervisory vel, training programme for Revenue, survey and ttlement staff to improve their efficiency A new heme was also included in it for providing financial sistance to needy States for this purpose

North-Eastern States

Large parts of North-Eastern region [illegible] ecifically the tribal areas, have no land records and ere is no organised arrangement yet to prepare records out rights and interest in land Land management stem in these areas consists of wide [illegible] of nurial and cultivating arrangements largely lecting the customary laws and practices of ferent tribes, sub-tribes and clans There is strong opposition from the people residing in these areas to any attempt at conducting survey and settlement operations The tribal inhabitants of these regions and their leaders perceive danger in terms of diminution of their rights in land if survey and settlement operations are carried out

Consolidation of holdings

Consolidation of fragmented land holdings, though necessary for efficiency and economy in agriculture and better development planning at the village level is not essentially a redistributive measure It is simply a re-arrangement of land on the basis of existing rights Even so, most States have not shown any enthusiasm for it Some have either relegated it to a 'voluntary' character or have not enacted any law for it or have kept the already enacted law in abeyance. Only in Punjab, Haryana and Uttar Pradesh this programme has made substantial progress largely due to the even availability of irrigation facilities which do not permit sharp difference in quality and estimation of land and, therefore, facilitating farmer's acceptance Orissa, Bihar, Himachal Pradesh have also taken up consolidation in a big way But so far around 1471 lakh acres have been consolidated which constitute a small part of the total cultivated land Apart from the increasing pressure on land and lack of alternative employment opportunities outside the farm sector inhibiting the progress of this programme consolidation operations are generally feared to favour the more influential and substantial land owners The small land owners, therefore, feel that they would not get a fair deal Besides, experience [illegible] sharecroppers [illegible] evicted [illegible] land owners [illegible] Land consolidation [illegible] In addition, [illegible] other natural factors, land owners [illegible] have tended to support fragmented holdings in order to cope with these factors better

Alienation of tribal land

Most States with substantial tribal population have framed laws for preventing alienation of tribal land and for ensuring restoration of alienated land to the tribals A review of these laws shows that legislative provisions have been far from adequate Even after amendments have been made in these laws the legal measures as well as administrative steps have failed to make the desired dent on the problem of land alienation For example, most State laws on the subject have the objective that tribal land should not pass on to non tribals through illegal and fraudulent transactions There are, however, many loopholes in these laws which have resulted in diluting their impact, particularly in view of some rulings of High Courts Further, the protective provisions in many States do not apply to all tribals outside the scheduled areas The process of legitimising massive alienation has also resulted from

some court decisions which have held that tresspass into tribal land does not constitute transfer of these lands. In some areas, unscrupulous elements have acquired control over tribal lands through illegal or fraudulent marriages with tribal girls in whose names they get the lands tranferred and whom they just keep as concubines with clear intention of grabbing their land. *Benami* transaction in favour of tribal farm servants or giving non-tribal children in adoption to tribal parents for grabbing their land are also common instances. The transfer of tribal land to non-tribals is also effected on the basis of wrong declaration or suppression of information about the identity of the individual transferring land. The prolonged litigation in which the tribal becomes a party is generally resorted to by the non-tribal adversary with a view to neutralising the effect of the laws. Even when a tribal wins the final legal battle, the delivery of possession is often delayed for a long time in collusion with the other party. Even when the possession has been formally delivered to the tribal it is not uncommon that the tribal is prevented from cultivating his land under threat from the same opponent. At times false criminal cases are instituted to demoralise him. In such circumstances, most tribals accept defeat and keep quiet rather than to fight it out. The position is further compounded by lack of motivation, illiteracy and lack of knowledge of laws and procedures

Even the administrative efforts so far made to restore alienated land have been quite inadequate and, in some cases, negligible as compared to the complexity and size of this problem Many State laws do not provide for initiating *suo-moto* action by the administrative machinery to prevent land alienation Action can be initiated only after the tribal makes a representation and institutes a case. The State machinery does not take up the cases on behalf of the tribals. Even when petitions are filed, cases are not initiated and when cases are initiated these are not expeditiously disposed of. In respect of cases disposed of, a large number of them go against tribals even when the legal provisions are clearly in their favour. Though the legal framework itself is unsatisfactory, the inherent resistance of the revenue bureaucracy to implementation of law is also evident

The magnitude of the problem of land alienation among the tribal communities differs from State to State, region to region and tribe to tribe. But indebtedness has been a common feature, the intensity of which varies in different areas. Indebtedness is both a cause and an effect of land alienation. Legal measures to curb the activities of money-lenders and traders exist but have failed to have much effect on the severity of the problem or else the implementation progress has been so weak as to render these provisions ineffective. Besides, tribals due to their social customs, traditions and poor economic base are prone to borrow from money-lenders on extremely exploitative terms. This results in non-payment of loans, mortgaging of lands and eventual alienation of such lands to non-trib[als]. The process continued even when loans were ta[ken] from public financial institutions. It has been fou[nd] that while financial institutions have been advanc[ing] loans for agriculture and other productive purpo[ses] the money lenders and traders are known to advai[nce] loans more generally to meet domestic consumpt[ion] needs, medical expenses, religious, cultural a[nd] social obligations etc. Lack of a sound national policy [to] extend consumption credit to poor tribals has ma[de] them completely dependent on rapacious money lend[ers].

Numerous studies on problems of tribal land alienati[on] show that land alienation has occurred as a result [of] forcible eviction, indebtedness, sale, mortgage, lea[se] of lands by tribals to non-tribals, encroachment, a[nd] fraudulent methods adopted by non-tribals to usu[rp] tribal land, *benami* transfers collusive court decre[es] and large scale acquisition for public purposes. It h[as] also been established that the bulk of the alienat[ed] land has been in possession of non-tribals who a[re] ever looking for opportunities to take away go[od] quality tribal land after tribals have made investme[nt] and efforts in making it fit for cultivation. Poor quali[ty] land has been reported to be relatively less prone [to] alienation

As against the intensity and complexity of t[he] problem, the general pattern about level of awarene[ss] among tribals about the dynamics of land alienati[on] as well as the remedial provisions is very low. Eve[n] where some awareness exists, there are structur[al] obstacles in converting this awareness into action f[or] restoration of land such as lack of knowled[ge] regarding modalities of seeking relief, reluctance [to] get entangled in litigation against a powerful adversar[y] harassment of having to go to court too often, fear [of] reprisals from encroachers and lack of faith in t[he] administering machinery.

Implementatio[n]

It is widely recognised that implemention of lan[d] reforms has not been satisfactory. Lack of cle[ar] direction from the State Governments has been one [of] the factors reponsible for this situation. Rural socie[ty] in India is a highly unequal society and characterise[d] by the skewed nature of land and asset ownin[g] patterns. This fact is compounded by inter-twinnin[g] of castes and classes A small group of land owne[rs] exercises social and political power, total[ly] disproportionate to their number. When faced wi[th] progressive land reform laws, these rural ric[h] maintain their position through use of muscle pow[er] and manipulation of administrative and judici[al] processes It is lack of determination to act against th[is] class which has stood in the way of efffective lan[d] reforms. The ambivalence at the political level has i[ts] effect on administrative style in the bureaucracy. [A] good officer is one who avoids conflict and can sett[le] things tactfully and amicably. Such a style [of] functioning accomplishes "token" implementatio[n] but is appreciated by vested interests. On the oth[er]

hand, the rural poor are unorganised and are unable to exert requisite pressure. The rule of police and revenue machinery at the lower level in the implementation of land reforms has also been negative. It has more often tended to favour land owners rather than extending protection to beneficiaries of land reforms.

Excessive litigation and the manipulation of legal procedures by the rural rich has been a serious stumbling block in the implementation of land reforms. Neccssary change should be brought about in the judicial and revenue processes so that bulk of the cases is settled speedily at the village or panchayat level and substantive justice is available in a simple manner.

It is recognised that no significant success in implementation of land reforms can be achieved without seeking active help and cooperation from organisations of rural poor, voluntary agencies and other representative bodies. □

What they stand for

IRDP

The Integrated Rural Development Programme is a major instrument of the strategy to alleviate rural poverty. Its objective is to enable selected families in rural areas to cross the poverty line. This is achieved by providing productive assets and inputs to the target group. The assets which could be in the primary, Secondary and tertiary sectors, are provided through financial assistance in the form of subsidy by the Government and term credit advanced by financial institutions. The programme is implemented in all the Blocks. Assistance is given to the rural families of target group having annual income below the cut off line of Rs. 4,800. The poverty line income is identified at Rs. 6,400.

DWCRA

The programme of Development of Women and Children in Rural Areas, a sub-scheme of IRDP, is designed exclusively for the women members of rural households below the poverty line to provide them suitable avenues of income generation according to their skills and local conditions. For better inter-communication amongst women, group strategy was adopted for DWCRA. The programme is being implemented in 161 districts in States and Union Territories.

TRYSEM

The scheme of Training of Rural Youth for Self-employment is a component of IRDP. It seeks to provide technical skills to rural youth in the age group of 18-3.. [illegible] families below the poverty line to enable them to take up self-employment and to an extent, wage employment in any of the economic sectors.

Training is to need-based, It is provided at institutions such as ITIs, Polytechnics and Institutes and by voluntary agencies or master craftsmen functioning from their own places of work

JRY

Jawahar Rozgar Yojana is designed to generate additional gainful employment for unemployed and underemployed, in the rural areas. It also aims at creation of productive community assets for direct and continuing benefits to the poverty group and for strengthening rural, economic and social infrastructure which will lead to rapid growth of rural economy and steady rise in the income levels of the rural poor. JRY came into existence with the merger of NREP (National Rural Employment Programme), RLEGP (Rural Landless Employment Guarantee Programme) JLNRY (Jawahar Lal Nehru Rozgar Yojana).

RWS

Rural Water Supply is basically a State subject. Government of India, however, accords top priority to this programme through the Accelerated Rural Water Supply Programme (ARWSP). The National Drinking Water Mission was launched in 1986 to give a sense of urgency to the task of covering all problem villages by 1990.

DPAP

Drought Prone Areas Programme is under operation in the arid and semi-arid parts of the country where environment is degraded due to soil erosion, loss of vegetal cover, water stress etc. The programme aims at restoration of ecological balance on a longterm basis through harmonious development of land and water resources.

DDP

In certain parts of the country ecological balance has been so severely upset that conditions of extreme aridity, shifting sand, scanty vegetation and severe wind erosion prevail . For controlling the process of desertification and restoration of ecological balance, the Desert Development Programme was launched in these areas. The main activities covered are sand-dune stabilisation shelterbelt plantation, conservation of surface water, recharge of ground water aquifers, efficient water resource management, afforestation, grassland and pasture development and horticulture.

LR

Land Reform measures have been perceived as an integral part of the strategy of rural development with focus on disengaging the rural poor from exploitative agrarian relations. In the context of the skewed nature of land holdings, redistribution of land constitutes an important step in social and economic uplift of the weaker sections. Various land reform measures have been pursued since Independence to provide access for the landless rural poor to land.

AM

The Agricultural Marketing programme envisages, among other things, regulation of agricultural markets, grading and standardisation of agricultural and allied commodities, assistance for setting up of rural godowns, market research and planning and training of personnel.

RR

Development of Rural Roads forms part of the Minimum Needs Programme (MNP) in the State sector. The Sixth Plan envisaged linking of all villages with a population of 1500 and above and 50 per cent of the villages with a population between 1000-1500 by 1990. About 50 per cent of the villages to be so connected were to be covered during the Plan period.

कल के संतुलित पर्यावरण
के निमित्त
आज प्रदूषण के विरुद्ध
संग्राम
भारत कोकिंग कोल लिमिटेड
कोयला भवन, कोयला नगर, धनबाद

It is in the countryside, in India's out-of-the way and farflung villages that a silent, but real revolution has been taking place. Our villages today are in a state of ferment... As the nation-building work progresses, villagers are shedding old prejudices and learning to help themselves with new implements and fresh ideas. It is the prosperity of this section of community which is our foremost hope, because among themselves the villagers account for about three-fourths of India's population even today.

— **Dr. Rajendra Prasad**

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Dr Zakir Husain C.

Independence must begin at the bottom. Thus, every village will be a republic or panchayat having full powers. It follows, therefore, that every village has to be self-sustained and capable of managing its affairs even to the extent of defending itself against the whole world. It will be trained and prepared to perish in the attempt to defend itself against any onslaught from without. Thus, ultimately, it is the individual who is the unit. This does not exclude dependence on, and willing help from, neighbours or from the world. It will be free and voluntary play of mutual force. Such a society is necessarily highly cultured in which every man and woman knows what he or she wants and, what is more, knows that no one should want anything that others cannot have with equal labour.

—Mahatma Gandhi

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Preserving Environment

It is really paradoxical when man was busy in exploring outer-space to satisfy his adventurous instinct, in increasing industrial output for making his life resplendent with splendour and in producing new-fangled artefacts to show his matchless creativity, he was rather oblivious of what was happening all this time to his habitat Mother Earth in the shape of environmental pollution and the resultant lurking danger to mankind. Fortunately, there is now increasing worldwide awareness regarding environment and the need for protecting it from various pollutants, almost all of them manmade.

Poverty is the biggest polluter, they say. It has to be eradicated and development has to take place to meet the demands of evergrowing population and in the process nature is likely to be disturbed. A suitable solution is to be found out to meet this seemingly contradictory situation. We hope, our scientists and technologists will be able to overcome this obstacle too.

Meanwhile, there is a heartening development. There are indications that India and China are now willing to sign the Montreal Protocol as they have come to a mutually acceptable understanding with the developed countries regarding the need for protecting the ozone layer and other related issues such as transfer of technology and phasing out the use of Chlorofluorocarbons which are harmful to ozone layer.

This issue brings to you, among others, a thought-provoking article titled "Coping with Global Environmental Change: Role of Science and Democracy", which puts the environmental problem in correct perspective.

Battling the Scourge: SAARC Strategy

WORLD ILLITERATE POPULATION in the 15 + age group was of the order of 890 million and it will hit the 900 million mark by the turn of the century. The illiteracy rates are the highest in the least developed countries and amongst the poorest and underpriviledged people. And 76.5% of the total world illiterate people in the 15+ age-group lived in the Asia-Pacific region in 1980. The gravity of the world literacy scene becomes clear from this UNESCO Statistics.

It is in this context that the declaration and observance of the year 1990 as the International Literacy Year as also the SAARC Year for the Girl Child becomes the obvious reiteration to the commitme to eradicate the scourge of illiteracy. Tl commonality and continuity in their histo geography and culture provide an excelle opportunity for co-operation in battling the comm enemy-scourge illiteracy.

The following three tables give a graphic account the present rate of affairs in the SAARC countries

One interesting feature of the literacy scene these countries is that the gains in the fields education reflected in increase in the number literates is neutralised by an alarming rate of grow of population.

Table 1

Illiteracy in the SAARC countries

S. No.	Country	Year	Age Group	Illiterate Population (thousands)			Rate of Illiteracy (%)			Rate of Literacy
					MF	M	F	MF	M	F
1.	Bangladesh	1981	15+				70.8	60.3	82.0	28
2.	Bhutan									10
3.	India	1981	15+	237,822	93,784	144,038	59.18	45.09	74.30	36
4.	Maldives	1977	15+	14	7	6	17 6	17.5	17.7	82
5.	Nepal	1981	15+	6,998	3,053	3,945	79.4	68.3	90.8	19
6.	Pakistan	1981	15+	33,597	15,512	18,085	73.8	64.0	84.8	24
7.	Sri Lanka	1981	15+	1,336	452	884	13.9	9.2	18.8	88

Note: Due to rounding, figures of illiterates by sex do not always add up exactly to the total.

Table 2

Gross Enrolment ratios for girls in primary and secondary education (1970 and 1982)

S.No.	Country	Primary			Secondary		
		1970	1982	Variations (1970-82) (in % pts)	1970	1982	Variations (1970-82) (in % pts)
1.	Bangladesh	34	49	+15	6	7	+1
2	Bhutan	1	10	+9	—	1	+1
3.	India	56	70	+14	15	21	+6
4.	Maldives						
5.	Nepal	8	43	+35	3	9	+6
6	Pakistan	22	33	+11	5	8	+3
7	Sri Lanka	94	101	+7	48	55	+7

Table 3

Total public expenditure on education as a percentage of the gross National product (GNP)

S.No	Country	1970	1975	1976	1977	1978	1979	1980	1981	1989
1	Bangladesh	—	1.1	—	—	1.7	1.5	1.7	1.7	—
2	Bhutan									
3	India	2.8	2.8	3.0	3.1	3 2	3.2	2.9	3.0	—
4	Maldives	2.3	0.7	0.6	—	0.6	—	—	—	—
5.	Nepal	0 6	1 5	1.5	1.6	1.6	1.6	1.8	1.9	2.5
6.	Pakistan	1.7	2.2	2.1	2.1	2.1	2.0	1.8	1 9	—
7.	Sri Lanka	4 0	2.8	2.7	2.4	2.5	3.0	3.1	3.0	—

1. From 1978 onwards expenditure of the Ministry of Education only.

A SAARC meeting in literacy and related issues held in New Delhi deliberated in depth into the matter.

A report adopted by the meeting emphatically says that there is need for an unambiguous political will and commitment to literacy. They should also formulate a clear, unequivocal political policy for adult education. This political will should be reflected in higher and propotional financial resources. There should be administrative directives for achieving these targets. Literacy is an integral part of human needs and literacy component integrated into all developmental programmes.

Universalisation of elementary, non-formal and adult education must be viewed as mutually supportive programmes. Additional schooling facilities for all children should be created in such a manner that no child is required to walk more than 1 km. Motivational support may be in the form of supply of free text books, uniforms and scholarship for the needy.

There is need for designing special motivational packages for women and other disadvantaged groups and motivating them to join the programme. Another significant point is that the overall approach in literacy, post-literacy and continuing educat should be area specific and intensive need-based a considerations should be given to spec requirements of various groups.

Resourc

Quite often than none, the gap between pol statements in support of universal literacy and act manner of allocation of resources create hurdles reaching the desired goal. So alongwith political w and commitment there is urgent need for mobilisati and actual allocation of resources for the successi execution of the programmes for universal litera Experience from several countries which ha launched mass literacy campaigns have shov that resources for literacy campaigns need not provided by government alone. For examp Myanmar (Burma) has practically no governme budget for literacy inspite of intensive plans eradicate illiteracy.

The work is done mostly by volunteers in a w planned programme. The government provides o teaching learning materials, leadership and over direction to the programme. It is desirable, therefo that government mobilise private agencies and lo community for generous contribution in cash a kind for supplementing government funding.

Literacy

There is a direct and functional relationship between literacy and productivity on the one hand and literacy and overall quality of human life represented by better health hygiene, sanitation and family welfare on the other.

— A world Bank study

National Literacy Mission : An Overview

THE NATIONAL ADULT Education Programme (NAEP) was introduced on 2nd October, 1978 This was intended to impart functional literacy to 100 million illiterate adults within a period of 5 years i.e 1978-83. It had sought to achieve this objective partly through a Centre-based programme and partly through a mass volunteer-based approach involving teachers and students of universities, colleges and schools, members of disciplined forces, ex-servicemen, non-student youth volunteers, etc. However, this mass orientation was not achieved and the NAEP remained primarily a Government funded and Government controlled Centre-based programme.

The National Literacy Mission has been conceptualised and built on an objective assessment of the strength and weakness of the NAEP. The Mission seeks to impart functional literacy to 80 million illiterate persons in 15-35 age-group. Thirty million by 1990 and an additional 50 million by 1995.

According to the 1981 Census, the number of illiterate adults (15-35 age-group) which was 91 million in 1951 has gone up to 110 million. This is likely to register a further increase of 116 million by 1995. The increase is on account of two reasons, namely: (a) increase in population; and (b) increase in the number of drop-outs from the formal school system from year to year. This is why despite sincere efforts to promote literacy, the number of persons made literate is always overtaken by the massive increase in population and the number of drop-outs which eventually adds up to the existing number of illiterate adults. In other words, the National Literacy Mission will be able to achieve a break-through in its objectives only if (a) there is a check on population explosion and (b) there is universal enrolment and retention of children upto 14 years of age.

In qualitative terms, persons attaining functional literate status would:—

- Achieve self-reliance in literacy and numeracy;
- Be aware of the causes of their deprivation and move towards amelioration of their conditions through organisations;
- Acquire skills to improve the economic status and general well-being; and
- Imbibe the values of national integration, conservation of environment, women's equality, observance of small family norms, etc.

Strateg

The strategy is threefold—Increased motivation o the learner, the teacher and of all adult educatio functionaries; Securing people's participatio through media and communication; Institutionalisin post-literacy & continuing education throug establishment of Jana Shikshan Nilayams all over th country; Universal outreach of literacy and learnin continuing education and vocational training all ove the country by 1990

The second aspect of the strategy is confined to 4 Technology Demonstration (TD) Districts. Th findings of technology and scientific resarch, whic have been tested and proven but which require loca adaptation, will be tried in the controlled environmen of these Districts. The results obtaining there-fror will be evaluated for application beyond thes districts.

The third part of the staregy is the structure an character of Mission management. This will be a : tier structure namely, national level, state level an district level. The structure at different levels wi operate over a compact area. Innovative methods wi be adopted in regard to selection, training an motivation of functionaries.

Achievement

A mass campaign for the-NLM was launched by th former Prime Minister on 5 5.1988. Similar campaig has been launched by 24 States and UTs on the sam date and after. The National Literacy Missio Authority with a Council and Executive Committe has since been constituted. This has accelerated th decision-making process as also its implementatio Twenty States have constituted the State Literac Mission Authority in the same pattern as at th national level.

In conformity with the area-specific and tim specific approach for complete eradication illiteracy, plans have been drawn-up an implemented.

- **Kottayam city made fully literate in 100 da (April-June, 1989)**
- **Ernakulam district made fully literate in on year (January-December, 1989)**
- **Full Literacy projects have been sanctione and launched in Kerala, Goa and Pondicherr**

Various schemes have been taken up in Gujarat, Rajasthan, West Bengal, Uttar Pradesh, Bihar, Andhra Pradesh and Tamil Nadu Involvement of teachers and students of schools, colleges, universities, members of the Armed Forces and their welfare organisations, ex-servicemen and trade unions and voluntary agencies is the other aspect of the mass literacy campaign.

New strategy

The experience of implementing the Adult Education programme in India during the last three decades has shown that if the content of literacy is relevant to the needs and interests of the learner, if the programme duration is not too long and if the results of initial efforts are quickly discernible, the learners would be motivated to learn. A new strategy has been drawn up keeping these in view. It aims at designing 3 sets of primer-III corresponding to 3 levels of learning namely-Level I, Level II and Level III, each level being a progression or improvement from the other. Each primer will be self-contained in as much as it will integrate teaching unit, exercises and drills, tests, evaluation sheets and a certificate to be given to the learners at the end of the successful completion of each primer. Since 3 primers are based on the principle of progression in learning, the learner, through a process of intensive self-evaluation at the end of each lesson and a final evaluation at the end of each primer, would be be able to see for himself/herself the pace and progress of learning. This perception would greatly promote motivation to learn and would also instil an element of self-confidence in the learner. Twenty State Resource Centres have also been involved in the preparation of multi-graded and integrated primers for IPCL. It is hoped that the new technique would be made fully operational by the end of 1990-91.

Problem of NLM

The problems and constraints which are coming in the way of effective implementation of NLM are:

(i) *Resource crunch*

The programme continues to suffer from shortage of funds. As against the barest minimum requirement of funds amounting to Rs. 139 crores during 1989-90, the actual amount provided was of the order of Rs. 76.17 crores. The position somewhat improved in 1990-91 when Rs. 96 crores has been provided but considering the magnitude of the problem of illiteracy, the large uncovered area and need for massive mobilisation, much more funds are required.

(ii) *Administrative constraints*

The administrative infrastructure at the state and district level for implementation of the NLM continues to be weak. The revised plan scheme which provides for a Directo[illegible] at the state level and DAEOs at the dist[illegible] level with supportive staff is yet to be f[illegible] adopted and implemented by many st[illegible] governments and Union Territories.

It has been generally observed that the Programme does not get any priority in [illegible] Education Sector, both in terms of outlay also in terms of deployment of personnel There have been instances of frequ[illegible] diversion of resources from adult educati[illegible] to other programmes.

It has been observed that hitherto integrated area-approach was adopted [illegible] implementation of AE programme; inste[illegible] the programme was being implemented fits and starts. Projects and centres a[illegible] opened without prior survey, are located ir scattered and fragmented manner and a[illegible] shifted from one area to another witho[illegible] achieving the objective of eradication [illegible] illiteracy in a particular area.

The AE programme has been viewed [illegible] isolation and there has been general lack [illegible] integration of the programme with oth[illegible] development programmes. Although number of functionaries of health, famil[illegible] welfare, rural development, women an[illegible] child development, forest, fisheries an[illegible] animal husbandary exist at the village, bloc[illegible] and district level, no sincere effort has bee[illegible] made to bring about a qualitative integratio[illegible] between the AE programme and the pro[illegible]grammes of these departments, even afte[illegible] issue of detailed guidelines at the Central an[illegible] State level. An insular attitude continues t[illegible] persist.

Strategy for 1990-91

The thrust in the Mission is on adoption of an area specific and time-specific approach. The area could be a village, a cluster of villages, a panchayat, a mandal panchayat, a taluka, a block or even a district. Irrespective of the geographical delimitation of the area, any agency which takes up an area-specific approach will have to fully eradicate illiteracy in a particular area within a given time frame. Keeping this important strategy in view, the State Governments/Union Territories as also voluntary agencies are being requested to demarcate the area of operation by suitable adjustments to make it more compact and contiguous so that time, energy and resources can be concentrated, economies of scales ensured and better results achieved in a short time.

Mass Mobilisation

The success of a societal mission like NLM entirely rests on social mobilisation i.e. involvement of all sections of society. Any person who is literate

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Educational Planning: Some Thoughts

Dr. C. Harichandran

The author believes that under the present circumstances, universal literacy is more relevant than universal primary education. Suggesting that non-formal education has a crucial role in the literacy drive, he underlines the need for closer co-operation between the government and voluntary agencies on the Kerala model, particularly for the educationally backward States. He pleads for higher central allocation for universalisation of education as also the need for recovering the loans granted by the State to the students for pursuit of higher education.

SOME BOLD RETHINKING on our educational objectives and priorities is called for. The founder fathers of our Constitution cherished the hope that Independent India would be able to achieve universal elementary education by 1960. The National Education Policy formulated in 1968 advanced the date to 1990. But a realistic assessment will show that universalisation in the true sense of that term will elude us even by the close of this century. What has gone wrong in our policy perspective ? The answer is that we have been too ambitious and did not realise the inevitability of gradualness.

Today, illiteracy is staring us in our face. Though the literacy rate has increased considerably during the post-independence period from 16.6% in 1951 to 36.23% in 1981 female literacy is much lower, the national average being only 24.8% and the average in some states like Rajasthan being as low as 5.44%. The World Bank estimates that there would be 500 million illiterates in India by 2000 A.D. The UNESCO's studies have shown that the removal of illiteracy is a necessary pre-condition for the success of universalisation of elementary education. Adult literacy creates a demand for the education of the children. It also gives a fillipto family planning as the Kerala experience h convincingly shown. Literacy also contributes to t success of democratic governments based on ad franchise, especially in developing countri Therefore, without the removal of illiteracy a attempt to achieve universalisation of elementa education would be chimerical. It follows th universal literacy rather than universal elementa education should be our immediate prima objective.

Focu

If this objective is accepted the educational polici will have to be given a sharp focus towards t attainment of this goal. The operational strategy m be spelt out as follows:

Free and compulsory elementary education for t first four years (say upto the age of 10 only): Here t emphasis has to be not on extension of enrolment b on qualitative improvements in existing low primary schools and the provision of incentives li mid-day meals, uniforms etc. in order to step retention rates considerably.

The second stage of elementary education vi upper primary has to be free but optional. We have reckon with the fact that 40% of our population a below the poverty line. Therefore allowance has to made for drop outs to assit the parents in inco generating activities or domestic chores as the ca may be. It would also facilitate the children's en into their hereditary occupations. At present t products of conventional secondary scho look down upon their hereditary occupatio and are averse to manual labour and unfit for a productive enterprise. Expert opinion regards t age of ten as the most suitable age at which childr could be initiated into the world of work. T programme would considerably reduce the cost providing educational facilities for non-attendi children in upper primary Schools and this will ha a multiplier effect in reducing costs in second education.

Non-formal education programme for those wl opt out of the academic stream and part-time scho can also play and important role in educating the

Adult education: We have an illiterate ad

population (15-35 age group) of about 11 crores. *According to the World Bank estimates 54% of the World's illiterate population in the age group 15 to 19 will be in India in the year 2000 AD.* Adult Education Programme will therefore have to be vigorously pursued with emphasis on functional literacy i.e. functional education to the illiterates which will have beneficial effects on their productivity. More and more voluntary organisations should be encouraged to participate in adult education programme which should become a mass movement. Much higher priority and attention should be given to adult education than has been done so far. This is very much essential as the efficient functioning of democracy calls for basic educational attainments of the citizens.

The position is not very different in the matter of higher education or technical education. Attempts have been made for restructuring undergraduate courses to forge linkages between education, employment and economic development. In the field of technical education efforts have been made to provide facilities in key areas of science and technology along with optimum utilisation of existing facilities.

Higher Allocation

The anticipated phenomenon of expansion in the next two decades obviously calls for an increase in expenditure on education for setting up of more and better equipped schools and colleges, recruitment of trained teachers, production of high quality text books and effective supervision in the administration. At present there are about 6 lakhs primary schools, 1.6 lakhs middle schools and 70,000 higher secondary schools In the present decade, the situation would demand expansion of infrastructure to accommodate the anticipated additional enrolement. On the basis of a standard norm of one class room for 45 students, it would require about 35 lakhs more calss rooms. Many of the existing school buildings which are in a dilapidated condition will need to be replaced by new ones or extensively repaired to ensure minimum standards of safety, sanitation and education. In addition, secondary schools will have to provide other facilities such as laboratory, library, vocational training equipment etc.

At present, there are about 5000 colleges including research institutes in the country. These would be hopelessly inadequate to absorb an enrolement of about 130 lakh students in 2000 A.D. The country would then have to increase the infrastructure substantially. Though not a healthy practice, the private registration system and shift system in colleges in this regard play a vital role today. The shortage of qualified and well trained teachers will be another major problem which the country would face in the next two decades. Along with other needs of education, mention may be made of the likely requirement of paper for text books and stationery as the prevailing shortage of paper would be *over unlikely to ease in future owning to the r depletion of the forests and wood resources. Adva planning to meet this demand becomes essenti*

Education is a concurrent subject but it has b essentially the responsibility of the States wh provide about 70 per cent of the total pl expenditure for education. Consequently t progress of education in different States have vari considerably depending upon their respecti priorities and budget allocation for education. W have today a number of educationally backward Stat whose record in the programme of universalisati of elementary education has been very poor. Th Central Government too has paid little attention t education in the past, the share allotted to educatio in our Five Year Plans has declined from 7.2 per cer in the First Plan to 2.6 per cent in the 6th Plan.

Education is a national responsibility and th Central Government with whom is vested the bulk o our financial resources should participate in it in big way for the removal of illiteracy and educate unemployment. With the focus on the developmen of manpower and human resource the Centre ha necessarily to enhance considerably its educationa budget.

Education, especially at the higher levels benefits a privileged class of people and there is no reason why they should not be made to pay for it. At present, in our desire to accelerate the progress of education we have made it free at the secondary school stage. The amount of fees in the higher education levels is abnormally low in India so that these courses are in effect, highly subsidised out of the tax payer's money. The fees for professional courses have to be jacked up considerably as the fees should have some relationship with the expenditure incurred on each candidate in conducting these courses. The system of interest free loan, scholarships to deserving but poor candidates to be returned in instalments from future earnings after employment has also to be introduced in such courses. A closer co-operation between the government and private voluntary agencies on the Kerala model is called for as means of spreading education in the backward States. The panchayats can also play an important role in such States in the propagation of education both by raising funds and implementing programmes.

The author is the Chief of State Planning Board, Kerala.

Returns From Investment On University Education

Dr. P.V. Bhaskaran Nair

Innovations in various spheres including Science and Technology and Arts and Humanities are essential for the development of a nation. Without higher education innovations are not possible. In this context the author justifies the massive investment on higher education and research.

THE COST-BENEFIT technique is a genera analytical method used in evaluating economic viability of investment project. This technique is used in this study for assessing the economic justification of investment in university education. Generally three approaches are possible in any cost-benefit study. The basis is the estimate of costs and benefits of the project over its entire period of life span. Once these estimates are obtained, the first approach is assessing the present value of net benefits, the second, working out benefit-cost ratio or the ratio of the present value of the stream of benefits to the present value of the stream of costs and third one, working out the internal rate of returns using the estimated present value of benefits and costs This method is used in this study.

Objective

This paper is an attempt to compute the internal rates of return (I.R.R.) on investment on university education (both private and social) at the post-graduate (M A./M.Com and M.Sc.) and Ph.D (Commerce,Humanities and Science) levels for various categories.

The private rate of return is estimated on the basis of private cost incurred by an individual and the benefits realised by him, as estimated by the earning differentials. The social rate of return is estimated on the basis of social costs (private and public costs) and the quantifiable social benefits. Generally, earnings after taxation are considered for the calculation of private benefits and before taxation for social benefits. However, in the present study earnings before taxation are taken for the estimation of l private and social benefits, as it was not possibl the informants to give correct information on inco tax payment which they are liable to pay from tin time: While the private rate of return is useful decision-making at the individual's level the so rate of return is helpful for planning of investmer education at large.

The widespread use of I.R.R. has been justifie two grounds. Being a pure number it is more usef comparing projects of different sizes directly ai bypasses the problems of choosing the appropi rate of discount and the problems associated wit In the field of Economics of Education the I. method has been extensively used

Internal Rates Of Retu

The estimated internal rates of return (private social) are given in the following Table.

Estimated Internal Rates of Return

(In percen

Category	Internal Rates of R Private	
M A /M Com Degree holders in Teaching Profession	11 89	
M A /M Com Degree holders in Non-Teaching Profession	6.10	
M A /M Com Degree holders in Teaching and Non-Teaching Together	9.35	
M Sc Degree, holders in Teaching Profession	11.84	
M Sc Degree holders in Non-Teaching Profession.	16.60	
M. Sc. Degree holders in Teaching and Non-Teaching Together	14.70	
Doctorate Degree holders in Commerce and Humanities	5.80	
Doctorate Degree holders in Science	8.80	

The study reveals that I.R.R. is influenced by factors as the choice of profession rather than by level of education. We see that the private and so rates of return of M.A./M.Com. degree holders are teachers come to 11.89 per cent and 7.35 per

respectively while the corresponding figures for those in non-teaching profession are only 6.1 per cent and 3.95 per cent even though the educational qualifications are the same in both the cases. With M.Sc. the private and social rates in terms of precentages are 11.84 and 3.68 respectively for teachers and 16.6 and 6.61 for non-teachers. Thus, while the maximum rate of return (both private and social) is for teachers with M.A./M.Com. The reverse is true for M.Sc. degree holders since it is the non-teachers among them who get the highest rates of return.

Among the Doctorate degree holders, the rates of return generally differ according to the Faculty under which they are qualified and not on the basis of their profession. As a result, it is seen that the private and social rates for a doctorate in the Faculty of Commerce and Humanities are 5.8 per cent and 2.87 per cent respectively, while the corresponding figures are 8.8 per cent and 0.59 per cent respectively in the Faculty of Science.

On the whole, those with M.Sc. qualification engaged in non-teaching professions enjoy the highest private rate of return (16.6 per cent) while the lowest (5.8 per cent) is destined for those who take Doctorate degree in Commerce and Humanities. On the other hand, Doctorate degree holders in Science who are teachers bring in the lowest social rate of return (0.59 per cent) while their colleagues with M.A/M.Com. qualifications achieve the highest rate (7.35 per cent).

The comparatively lower private rates of returns for the doctorate may be attributable to the relatively high cost of research and the lack of relatively high cost of research and the lack of additional earnings of the doctorate degreeholders commensurate with their qualification. Among the post-graduates, the rate of returns for non-teachers with M.A./M.Com. degree is the lowest. This may be due to the fact that most of them are found working in jobs requiring only S.S.L.C. or graduation and that they are not given any higher salary according to their qualifications.

The social rates of returns were found to be much less than the private rates of return in all cases. This may be because post-graduate education and research are considerably subsidised by Government and social costs are much higher than the social benefits. The comparatively poorer soical rates for Doctorates may be on account of the exorbitant public cost of research including institutional cost, especially in the Faculty of Science.

Very few earlier studies give estiamtes of private and social rates of returns specifically for post-graduate education and research leading to Ph. D Further, these studies fo not yield strictly comparable estimates mainly because of the differences in the coverage of the study, reference period, nature and size of data and methodological differences. The available estimates for post-graduate education (general) estimates for post-graduate educati (general) given in the few studies indicate that t private rate of return varies from 7 per cent to 12 p cent and the social rate of return from 3 ner cent to per cent.

Capital investment in any project is judged on tl basis of a comparison of the rate of return it yields ai the opportunity cost of capital. In the absence estimates of any opportunity cost, it is customary compare the rate of return with the rate of intere prevailing the capital markets even though general it varied over a wide range. In this respect the rate interest on fixed deposits at the nationalised banl can be reasonably considered as a proxyk for tl opportunity cost of capital. At present, the intere rate is 11 per cent on fixed deposits over three yea given by the nationalised banks. AS against this, tl internal rates of return on investment on universi education estimated in this study ai *comparatively higher except in the case of pos* graduates taking up non-teaching profession an Doctoraties.

A comparison of the estimates of private intern rate of return with the interest rate leads one t conclude that investment in university education a the M.A./M.Com. (in the case of those who enter int non-teaching profession) and Doctorate levels is nc fully justifiable and Doctorate levels is not full justifiable from the economic point of view. But it i appropriate to bear in mind that the above estimate are based on monetary income alone and ignore th othr intengible benefits which cannot be expresse easily in monetary terms in spite of their importance

The estimates are likely to be biased downward. B and large, the results, therefore, justify investment ii post-graduate education and research from the poin of view of individuals.

Spill-over Benefit

Strictly speaking, a comparison of social rate o return with the rate of interest on capital is no warranted. However, a comparison of the tw indicates that the estimates of social rate of return ar much lower than the rate of interest on fixe deposits. Therefore, one can justify investment oi higher education from soical point of view only i indirect spill over benefits to the country as result o university education also are taken consideration.

For the development of the country, innovations ir different spheres including agriculture, industries science and technologyj are essential. Equally important are innovations in Arts and Humanities since they are vital for the maintenance and development of highstandards of public integrity, cultural sophistication and national consciousness. Without higher education and research, innovations are not possible., From this point of view, public investment on university level education and research appears to be justifiable.

SAARC Year Of The Girl Child

The Girl Child And The Family

Modhumita Mojumdar

Though we take pride in our ancient culture and often quote a Sanskrit saying, "Gods reside there where women are worshipped", but things are quite different in our society today as is borne out by the increasing number of dowry deaths. The author in this article has underlined the generally pitiable condition of the girl child in most of our orthodox families as well as the casualness with which she is continually discriminated against.

THOUGH THE HARDIER of the species, females in India are numerically fewer than the males. Death of women at child birth when some of them are still in their girlhood, accounts only partly for this sorry state of affairs, reflecting the systematic neglect of the female from birth to death even when she is not actively ill-treated or exploited by the family and the community. Girls and women, then, constitute India's largest oppressed section. Indeed women are some of the most staunch upholders in a family set up where not only women but girls are expected to bear the entire domestic drudgery, perform most of the parental duties as mothers or surrogate mothers and make all the sacrifices needed in order to enable the men and the boys to live in relative comfort.

This pattern obtains in every community-in Hindu, Muslim, Christian and Sikh households in villages as well as towns and the metropolitan cities; in palaces as well as slums.

The demand and supply logic did not operate in the marriage market. Nor does it today. Dowry is illegal– only on paper. In actual practice, consumerism and greed of a kind never seen before have combined to make many a boy's family totally shameless in their demand for dowry in the shape of jewellery and other expensive "gifts"– not only at the time of marriage but for years to come. The daughter in-law is generally treated as the goose that lays the golden egg. Once she stops laying the golden eggs, the young wif[e] tortured. Sometimes this produces results. [...] parents of the girl, not knowing any better [...] imagining that staying married at any cost is the [...] thing that could happen to their daughter cough[...] the money. If they do not do so, the husband and [...] in-laws step up not only the mental torture but [...] physical violence– sometimes terminating [...] murder, made to look like an accident.

Some girls, unable to stand the third degree [...] ranges from highly refined forms of cruelty and in[...] to the gross, are driven to leave the home [...] commit suicide. The law on dowry deaths, tho[...] revamped still seems inadequate and the crimi[...] literally get away with murder. As in the case of [...] initial demand for dowry, hitherto little or no so[...] opprobrium was attached to the in-laws in the cas[...] bride killing that is euphemistically known as do[...] death. As for the parents of the girl, their guil[...] marrying off their girl child to a dowry-hunte[...] refusing to pay heed to the warning signals therea[...] and shutting their eyes to the plight of their daug[...] in her husband's home is not punishable in [...] while the community treats them as helpless vict[...] and not as the accomplices in crime that they are [...] for the humiliation and contempt heaped on the [...] in her marital home, that is considered her lot [...] thing to be humbly tolerated and not resented.

The Sitas and Savitris of this country are brough[...] from infancy as second rate citizens who are infe[...] to their brothers and must accept this God-ordai[...] status without a murmur of protest. Parents ex[...] their daughters to be monuments of patience [...] tolerance in their marital homes. Once married, [...] is no longer a daughter first. Her place is at the fe[...] her husband - no matter whether those feet [...] made of clay or used only to kick her around.

Antiquated Nor[...]

More than four decades have passed since I[...] attained her freedom from the British yoke. Thes[...] four decades of ensuring social justice, welfare o[...] weak and the downtrodden, development, econ[...] progress in a planned manner and the building [...] our much-vaunted scientific temper. Yet habit[...] hard, and antiquated norms and superstitions[...]

govern us as people. It is true that we had men like Raja Rammohun Roy and Ishvar Chandra Vidyasagar to initiate reforms in the last century. But give the Devil his due, the British administrators were responsive to their demands for reform and renaissance. The *anti-suttee* law was passed, as was the Widow Remarriage Act. Today, fundamentalism is on the increase in every religious community. Though rare, there are cases when young widowed girls are burnt alive on their husbands' funeral pyres and and thereafter deified and worshipped. A dead girl cannot lay claim to her husband's property or "go astray" and thereby bring dishonour to the family. Moreover, a *sati* in the family is a very lucrative proposition as gullible devotees by their thousands bring lucrative offerings in cash and kind to the "shrine". It is futile to quibble whether the Roop Kanwars of our society were forcibly burnt or ascended the funeral pyre of their own volition Daughters are brought up to think that the husband is the be all and end all of a married girl's life. And marry she must, because what greater shame there could be for a woman than remaining a spinster? So, from birth, girls internalise the patriarchal norms. When the husband dies, it is natural for them to convince themselves that they would be better off dead. When the family encourages this kind of thinking at a moment of intense grief, and builds up mass hysteria— we have a *sati*. After all, despite Vidyasagar how many Indian widows remarry even in this day and age?

Even today, by an large, a woman who has given birth to a daughter is not only to be pitied, but also blamed for it. The mother-in-law, herself the proud mother of a son, is particularly active in heaping accusations and ridicule on the mother of a new-born daughter. It speaks volumes of the kind of "scientific temper" that we have inculcated in our boys and girls for the past four decades and more, that neither formal education make us aware of the well-established fact that the "fault" for conceiving a girl child lies with the man, not with the woman. For it is the chromosomes in the sperm that comes from the man which determines the sex of the child at the moment of conception. A scientific "refinement" recently introduced to make female infanticide less obnoxious is medically induced abortion of the foetus after amniocentesis. Of course, possibly it is better than torture, neglect and exploitation through childhood of the unwanted girl child permitted to live on sufference. Swift death at the foetal stage seems to be a lesser evil than denying the child her very childhood by constantly discriminating against her.

The UNICEF files have a photograph of an Indian mother with her son and daughter. The son is chubby, while the daughter is emaciated— barely skin and bones. Yet, the mother is offering the single banana she has to her son, while the daughter looks on in mute acceptance of the inexorable right to better food and is her broth privilege. The pecking order is well establishec most homes— first the men and the boys, and then girls and the women. When food is in short suppl is the girls and the women who are the first to sta This order does not change even when the woma pregnant with a child and should be eating for tw couple of dry *rotis* with some pickles or a piece onion or even just a bit of salt is considered enou for her physical needs.

No Resp

Illiteracy is the bane of our country. But even wh sons are sent to school, the daughter is not, When s is not sent to work in order to supplement the fam income, she is expected to help in the housework cook, scrub, fetch water and firewood over lo distances, tend to the cattle, the goats and the poult look after her younger brothers and sisters... She expected to do all this virtually single-handed if h mother works as a wage labourer on the fields or i factory. Indeed, girls constitute the bulk of our sch drop-outs. These children are almost invarial pulled out of school by their parents.

Even in middle class homes boys are given bett and more expensive education than what considered adequate for their sisters. The son com back from school and goes out to play cricket, chat wi his friends or stays at home to read the newspap and story books or to simply watch the TV. T daughter may be younger, yet it is she who mu help her mother with the housework when sl comes home after a trying or tiring day at scho Educated and working mothers, too, see nothir wrong in this scheme of things. They buy expensiv mechanical toys for their sons and miniature cooki utensils for their daughters in order to prepare the from childhood for domestic drudgery. Even workir boys have leisure, while working girls must help the mothers with her domestic and parental duties home.

However, the family alone is not to blame for thi Peer group pressure and the attitude of the society a large also perpetuate the double standard by whic we judge our sons and daughters A teenage daughter coping with the entire house work whe her mother is ill does not elicit much sympathy However, on the rare occasions when a teenaged so tries to cope with domestic work, relations, friend and neighbours are full of concern and go out of thei way to pitch in and help.

Our foundling homes are full of unwanted gi babies. But boy babies are never discarded so readily Even when they are, it is easier to find adoptive homes for them. The values internalised by our girl from infancy are also quite different from the value we instil in our boys. Attitude to sex and attitud towards the other sex are instances in point. Rape i ugly, brutal and humiliating. But the rape of a girl i

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Coping With Global Environmental Change

Role Of Science And Democracy

Prof. M.G.K. Menon

UNTIL RECENTLY, HUMANITY was a relatively small entity on what appeared to be very large home—the Planet Earth. The progress of the human race, since its earliest beginning , has been marked by the use of the human brain and its great powers of logical reasoning Throughout history there has been innovation leading to human advancement and to great civilisations. But it is only a few hundred years ago that the Scientific and Industrial Revolutions took place in Europe, which set the pattern for the present pathways of development. These have been characterised by increasing use of energy, and technological innovations to increase production and productivity, leading to the present industrial societies This pathway of development has brought about unprecedented affluence in the developed countries or the so called industrialised North Science and Technology has grown at an exponential rate over this period; and coutinues to do so. If we do not take stock and alter our expectations and ways of functioning we will hurtle into the future along this same pathway at increasing speed.

In this connection Mahatma Gandhi had remarked: "A technological society has two choices. First it can wait until catastrophic failures expose systemic deficiencies, distortions and deceptions... Second, a culture can provide social checks and balances to correct for systemic distortions prior to catastrophic failures". Are we prepared for the latter? And how do we do it in a democratic set up ?

Need For Sustainable Development

Since the Second World War, we have seen the liberation of large parts of the world which were under colonial domination. We have seen a tremendous increase in world population, from a figure of around 3 billion in 1960 to 4 billion in 1974, to 5 billion in 1987; it is expected to be 6 billion by 1991 and 8 billion by 1992. This population increase has, on the one hand, been due to reduced death rates, increase in life expectancy and improved conditions of living resulting from application of science. On the other hand, we are aware of the large family sizes characteristic of poverty and lack of education, particularly in women. Thus, the population increase has been the result of scientific advances on the one hand and lack of development on the other—which is somewhat of a contradiction

There are the basic needs of an already large and rapidly growing population: of water, food, energy, shelter, clothing, employment, education, health and others. In addition, there is another aspect which is a direct result of the progress of science and technology, namely, the manner in which the world has become, over this period, a very small place through advances in transportation, communications and broadcasting As a result, the ways of life that characterise the affluent countries are widely known all over the world. Societies in developing countries have, therefore, justified aspirations to progress to these levels of material well-being, consumption patterns and affluence. There is, thus, an increasing universalisation of societal expectations.

So far our path of progress has been based on meeting our needs from the environment that sustains us— an inheritance we have continued to draw upon and which we have regarded as an infinite resource. A large part of this inheritance is non-renewable, such as the important fossil resources and the minerals and metals. Can this environment support the rising tide of expectations ?

The concept is clearly with us that we definitely need development; but it has to be sustainable. For

this, it is necessary for us to understand what our inheritance is, of natural resources, in the environment that sustains us; only then can we put these to good use. We need to plan so that the interests of humanity as a whole take precedence over those of nations and pressure groups concerned only about short term gains and narrow considerations. We need to appreciate and to develop the vision of a one world of interdependence that science and technology has brought about.

Global Environmental Change

Through its history the earth has witnessed many major transformations. Some of these have occurred over long time periods of the order of millions of years. There have been many changes in temperature and climate over this time scale. There have also been sudden short term and catastrophic changes wrought by nature, such as cyclones, typhoons, and hurricanes in the atmosphere, storms and surges of the ocean, and earthquakes and volcanic eruptions. These have essentially brought about short term changes in the environment, and the effects have been local rather than global.

(In general, nature has been dynamic and changing. But human impact on these changes was essentially non-existent until a century ago. However, the development of science and technology, and the manner in which it has been used to bring about the progress that we have witnessed, as also the enormous powers that it had given to the human race, has changed the picture completely. We are today in a position where consciously or unconsciously these powers can bring about major perturbations in the environment leading to irreversible changes. The conscious and spectacular way in which this can come about is through a nuclear holocaust which can wipe out civilization as we know it and a large part of the human race, and in the process also radically transform the environment in a manner which could have unforeseeable catastrophic consequences, through the so called "nuclear winter". Fortunately, the reduced tensions of the world have rendered this very much more of a remote possibility than what appeared to be a case only a few years ago.)

But, it is now dawning on us that the scale on which the present level of human activities is progressing is putting a load on the environment which is so large that it has the potential to alter the environment in a major way, and these changes and their consequences can occur in a time period as short as a human life span.

Current Scenario

Over a long period of time, we have been aware of the manner in which human activities have been damaging the environment. These have been increasingly documented and brought to public notice over the past few decades. Rachel Carsons's book "Silent Spring", heavy metal pollution characterized by Minimata disease in Japan, extensive deforestation all over the world, industrial pollution and acid rain, are examples of issues which have caught the public eye. Much of these have been in terms of phenomena and impacts that have been tangible, short-term, and largely local. The concern over the problems of pollution, principally in the industrialized countries, was the principal theme of the Conference held in 1972 in Stockholm on Human Environment. But it was the late Mrs. Indira Gandhi who focussed attention at that Conference that a large part of developing world was faced with the problems of poverty; and that poverty was the worst form of pollution. We will have occasion to go back to this question later in substance, the argument would be that the solution to poverty lies in development; this calls for increased energy, industrial and agricultural production. If this is done, following the pathways so far followed in the North, we cannot contribute to a solution of global environmental issues.

It was following the Stockholm Conference that the United Nations' Environment Programme (UNEP) was set up. Since then, over the last two decades there has been increasing awareness of human activities producing changes more insidious, more global and more long term, with what could possibly be extremely serious consequences. This is today encompassed under the broad term "Global Change".

The underlying basis for public awareness and conern has been careful systematic scientific work. It is scientists who have been concerned about this, who have speculated and made measurements and brought these aspects to the notice of society.

Thus the famous Swedish scientist Svante Arrhenius had, early in this century speculated about the possibility of a greenhouse effect in the global environment resulting in warming. There have been systematic scientific measurements of a variety of atmospheric gases such as carbon dioxide and methane-both greenhouse gases. Through these we have seen that the level of carbon dioxide has been increasing between 1960 and the present on an astonishingly regular basis. Indeed, we know that this increase has been taking place since the mid-18th century but has accelerated since the Second World War. This increase is principally due to combustion of fossil fuels.

Greenhouse gases are transparent to the incoming solar radiation, but are strong absorbers of the longwave or infra-red radiation emitted by the earth's surface. An increase in their concentration would trap the radiation emitted by the earth and thereby warm the atmosphere. There are several greenhouse gases: carbon dioxide, methane, ozone, oxides of nitrogen and the halogens. It is because of the greenhouse effect that the average temperature of t

earth today is about +15° C instead of being about -16°C. If the concentration of greenhouse gases increases, the earth would become warmer, with its consequences. There is little dispute about the sources of emission of carbon dioxide through the burning of fossil fuels, because it is relatively easy to quantify, but problems do arise in estimating carbon dioxide contribution through deforestation. There still remains the problem of 'missing' carbon while attempting to balance the carban budget of the globe. The sources of methane, an important greenhouse gas, are quite uncertain. Most of the data which has been used for estimating this gas comes from temperate zones which have been extrapolated to tropical regions. There is now considerable evidence to demonstrate that this gas can become ineffective through hydration. However, the potential of this reaction for different environments is yet to be fully assessed. As regards chlorofluorocarbons CFCs, it is hoped that their emissions will be controlled through international agreement.

In an overall sense one can say that the accumulation of greenhouse gases currently in the environment is increasing at a rate such that their combined effect will reach a level equivalent to doubling pre-industrial concentration of carbon dioxide by the next century.

An important subject to bear in mind is the fact that carbon dioxide and methane are not only part of the geosphere but are importantly linked to the biosphere–hence the need for a total analysis of the geosphere–biosphere system. Again, anthropogenic emissions are but small increments to the large quantities which are there in the ocean and ocean bottoms, and the exchanges which occur naturally between the atmosphere and the oceans or the land. Thus relatively minor adjustments in these natural fluxes could significantly affect the atmospheric concentration of greenhouse gases in the future. In taking note of the concentrations of greenhouse gases and consequent greenhouse effect, one has also to understand the role of clouds and water vapour.

There is another important aspect to keep in mind that the oceans, in an inertial sense, set the pace for climate change. Thus, an increase in greenhouse gases does not automatically imply an immediate response in terms of warming and climate change. We are aware, in this connection, that the change in the earth's climate over the past hundred years has been substantially less than inferred directly from the change in the radiation at the surface. We know that the change in greenhouse gases that has taken place already should have produced a global warming of 1° to 2°C. Observations show that this is not the case. This is probably due to the fact that the ocean may have induced a delay. But the expected change could take place somewhat later into the future. If this is so, then warming towards a quasi steady climate will continue long after one has been able to stablize the magnitude of greenhouse gases in the atmosphere.

We have come to a scenario that there is a di continuous increase in the concentration of house gases in the atmosphere which has accel in recent past. On a simplistic basis, without note of other linkages and feedback element could result in a rise of global temperature. Its distribution remains to be understood. This would lead to climatic changes and possible se rise. Climatic change would have implicatio agricultural production. There could also be ch in the occurrence of natural disasters, su cyclones, storms and the like. However, it w clearly seen that except for the primary observ relating to the concentration of greenhouse which involves precise scientific measuremen are rapidly entering into greater areas of lin modelling and deductions involving parameters and uncertainties. For this reaso quite clear that it is necessary to mount and co international scientific cooperative efforts on various facets that relate to global change.

International Progra

The key objective of International Geo Biosphere Programme (IGBP) of the Intern Council of Scientific Unions (ICSU) is "to de and understand the interactive physical, che and biological processes that regulate the tota system, the unique environment that provid life, the changes that are occurring in this syste the manner in which they are influenced by actions." IGBP recognizes that there are many and programmes that are already being addre existing initiatives, at national level as w through large international organizations such World Meteorological Organisation (WMO), etc. IGBP will make full use of the know resulting from these. For IGBP "the priority wi key interactions, and significant changes o scales of decades to centuries, that most aff biosphere, that are most susceptive to perturbation, and that will most likely practical, predictive capability."

It will thus be seen that the primary goal of IG advance our ability to predict changes of the environment, so that society can be fore-w about the consequences of pathways being cu pursued, and concerning changes that nee introduced, if catastrophe is to be avoid sustainable development assured.

It is clear that a programme of this nature definition to be global in character. One understand the ecology of the earth other measurements over a whole range of latitu longitudes on the earth's surface, as wel various altitudes in the atmospher depths in the oceans–namely through colle

data from many sources and locations. Three-fifths of the land area of the earth is covered by developing countries, who must therefore be participants in this programme. Scientists from different disciplines and areas of experience and expertise have to work on this programme; therefore, the large number of discipline-oriented Unions, who are members of ICSU, have all to play an important role in this activity.

A programme of this nature has become possible only now, with the availability of global observation systems based on satellites with advanced sensors, and large scale computational capabilities for analyses and modelling. We also know much more now on how to extract palaeo-information on environmental parameters from the distant past which are indicators of global change.

This is a programme which will continue over several decades It is the most ambitious and most wide-ranging global scientific programme ever taken up. Developing countries will be able to participate in this, in terms of making observations on land, sea, air, and through satellites. They will be able to obtain equipment and learn about maintenance, accuracies, and production of data which can be put together on a global scale. They will be participants in the analysis of one of the most complex problems that has ever been tackled— the global ecosystem, involving all the disciplines of mathematics, computer modelling, physical processes, chemistry, biology, oceanography, extracting information from the past, non-linear system relationships and the like. There are immense intellectual challenges and rewards. IGBP can be a significant engine for scientific development in the Third World countries

The success of such a programme calls for free availability of data and information, namely, a system of openness which is at the very heart of scientific endeavour. It will involve access to all national territories and exlusive economic zones It will demand long term commitments of scientific and financial resources, with no practical applications for many years. But what it will lead to are. synoptic and global measurements and observations, clear perceptions of key parameters and their inter-connections; an understanding of the earth's environment; the manner of the changes taking place in it; and therefore the ability to predict the impact of human activity on the environment and its consequences This is something that the scientific community alone can provide.

The impact of global warming due to increasing greenhouse gases may be regionally quite severe Current state-of-art numerical models are incapable of providing accurate forecasts of expected regional impacts of such warming For developing practical predictive capability, focussed regional scale monitoring capability and research activity is neded In addition, there is a dearth of information/data on processes important in a global change context from low latitudes, especially ecological sensitive region in Africa, South-East Asia and South America.

Impact On Society

Climate is the major factor for the origin, evolution and sustenance of life. It is only because of congenial climate that life exists in its present form Palaeoclimatic scenarios indicate that large scale changes in flora and fauna occurred in the past due to climate change The disappearance of dinosaurs and the appearance of angiosperm continue to baffle scientists. Therefore, the primary effects of climate changes will be on biological systems including microbes, plants and animals.

Agriculture

Temperature and associated processes have a profound effect on agriculture. There are regions where agriculture cannot be practised because of low temperature. There are also the regions where the prevailing high temperatures have led to desertification, and consequently leading to a non inhabitable environment. At the global level, an increase in temperature would lead to an increase in cloudiness. Thus situations will arise wherein crops such as rice can be adversely affected. Increasing temperature almost invariably leads to shortening of crop duration and hence of reduced crop yield However, this may be partly compensated by increased concentration of carbon dioxide

It is almost impossible to predict the impact of mean annual increase in temperature and precipitation on agriculture, particularly in tropical countries where the crops are strongly season bound and their cultivation is limited, more because of presently prevailing higher temperatures rather than being limited by the insufficient period of warm temperatures. The same applies to precipitation.

Improvement In Scientific Analysis

Since the concentration of various gases is the primary cause for "greenhouse effect", it is imperative that the sources of emissions and the contribution by different regions and nations is properly quantified. How the atmospheric chemistry of these gases and other molecules would change in the atmosphere needs to be better understood.

The data base of various activities, and their efficiencies related to greenhouse gases, needs improvement in the developing countries. These include forests, methane, fires, snow cover, glacier movement, sea level rise and others.

The General Circulation Model outputs at regional level are inadequate. Considerable improvement in these models is needed to validate the present climate

There is need to develop crop simulation models to attempt sensitivity analysis in respect of various environmental factors. At present most of the crop simulation models use 800 ppm (for doubling of carbon dioxide) as input for carbon dioxide, but in actuality the effects of carbon dioxide doubling imply only 460 ppm. Thus a whole set of improvements are necessary before reliable assessments for the regions can be made.

In the area of impact on agriculture, the studies have been done mostly on marginal areas and have been extrapolated to all regions This is grossly unfair for tropical regions where marginal areas have a high degree of variability in environment and production. For example, the impact of climate on agriculture in Rajasthan and Gujarat (marginal areas in India) has not much relevance to overall food security in India

Links between agriculture production models, economic models and policy options are based on the relationships in industrialised nations. These relationships may not be applicable to developing countries where a high population, reduction in land holding, poor energy consumption, etc constitute altogether different relationships.

North-South Dialogue

We are aware of the dialogue which has been on-going between the North and South in the United Nations and other fora concerning the problem of equity and social justice This has been characterised by the debates on the New International Economic Order and by the famous Brandt Commission Report Little success has been achieved in this dialogue, which has given [illegible] deal of acrimony and frustration. Throughout recent past, the South has been fighting a grim battle against poverty, crushing debt problems, difficulties with balance of payments and low growth rates. There is no indication that there will be any notable improvement in these matters in the immediate future

However, the present concern about environment offers a major opportunity for a creative dialogue between the North and the South over the use and management of the finite resources of the earth, which obviously is connected with the broader issue of international economic management. In this dialogue, the North starts with some advantages, in that it has greater access to scientific knowledge, and also has a much higher capacity in science and technology to work out solutions that would enable it to continue its present pathways of development However, there are great advantages that the South possesses. Firstly, for any true understanding of global change, significant scientific work in, and by, the countries in the South is important; one cannot understand this global scientific problem concerning the physiology of the earth without global measurements and analysis. Secondly, contributions of the South to the production of greenhouse gas and consequences that stem from this, are going to profoundly important for the global environment one moves into the future; this arises from the inherent needs for increased energy, agricultural a industrial production. Considering the ext ordinarily low levels of the contries in the South this regard, there is no way by which one can t them not to proceed in this direction. The o solution lies in offering them opportunities in ten of both resources and technologies to enable them achieve this increased production without significa damage to the environment. This clearly demonstra that first there has to be international co-operation which the South has to be fully involved on the scienti aspects of understanding global change, Second environment cannot be treated as a distinct issue its right as the North presently assumed. This w have to be treated within the broader agenda international economic management. This is t compulsion arising out of the global nature of t environment.

This can be illustrated with concrete cases relati to the problem of ozone and CFCs. One has becoi aware of the serious dangers to the ozone la through the increased consumption of CFCs. T observation of the ozone hole of the Antarctica w significant in this regard. Recognising the gr importance of the ozone layer, and the comm danger that all nations face as a result of actions t can endanger this, the Montreal Protocol came i existence Between March 1988 and February 1989, countries had ratified the protocol. However, some the large developing countries like Brazil, China a India are absent. Their argument is simple. T damage of the ozone layer due to CFCs is alm entirely due to what has been done by the industi nations. It is true that the Montreal Protocal ai at preventing such damage in the future. This, developed nations hope to do, through substitutes CFC Developing nations should also acquire th substitutes to proceed along the pathway industrialisation without damage to the ozone la But they would not be able to afford the high price import nor the high prices for technology transfer the interests of the global environment, the work finding CFC substitutes must be paid for internation and be regarded as a heritage for all humanit benefit from. It should not be treated as an a involving only narrow commercial interests of fi or countries The debate is an on-going one, with North willing to consider providing help. But discussion relating to costs is not likely to be an e one It is important that, in interests of the gl environment, and of progressing on a pathwa constructive international dialogue and agreem the South and North must be willing to acce meaningful objective analysis.

The more difficult area will relate to that of ca dixoide generation through burning of fossil f Here, the problem of gross inequalities ca

demonstrated with a few numbers. India today has a per capita energy consumption of 250 kgCE; developing countries as a whole have 500 kgCE; the developed world has a figure of 5000 kgCE and North America, 11000 kgCE. Energy is the key to development. India cannot be expected to remain at its present level of energy consumption. With regard to exploitation of hydro-electric resources, one faces problems of submergence of forests and species reduction, displacement of populations particularly tribals, and hazards of dams in seismic areas; hydel power is also subject to fluctuations in rainfall and is principally used for peaking power. The area of nuclear energy is being pursued, but it involves heavy investments and long gestation periods, and also of societal fears relating to accidents after the events like Chernobyl, and dangers of radiation. Oil still is an import item and is principally used for transportation and domestic purposes as also for chemical industry. It is clear that power generation has to be based on the burning of coal. The complexity of the carbon dioxide problem is that it is related to alternative sources of energy; and there is little in sight at the moment which can meet the very large increase in energy demand that is going to take place in India in the foreseeable future The situation is very similar in the case of China. The need is for a global coordinated attack on improving energy efficiency and reducing carbon dioxide output in the burning of coal, development of non-conventional and decentralised renewable energies and other possible new energy sources. This again cannot be done purely as a commercial proposition by individual firms. This would have to be done by governments, and international organisations, and with international funding. This once again demonstrates the fact that the environment question is related to the energy question which is intimately related to development; therefore, environment cannot be divorced from a new international order which takes full note of the importance of equity and social justice.

Conclusion

It has been tried to trace how we have become aware, particularly over the past two decades, of the manner in which human activities are producing changes in the global environment. We do not, as yet, have a detailed understanding of the science relating to the succession of steps from the production of greenhouse gases leading to global warming, climatic change, agricultural production, sea-level rise and the like. One must state that there are considerable uncertainties and divergences in scenario as we proceed down the line. However, some of the models and scenarios indicate serious consequences. How humanity responds to these new dimensions of global change will have far reaching consequences for the capacity of the earth to accommodate life and to support future formations. We are entering new stage that calls for an extraordinary response. These environmental issues are linked to economic development from which th cannot be separated. The issue of technolo required for economic growth and prosperity and t issue of equity between people and between natio needs immediate attention. This calls for a spirit cooperation between North and South. We have bend the great powers of science and technolo to bring about new developments which a environmentally sustainable rather than allow acceleration in the direction from the past and whi would lead to a better world for all. For this there need as much for moral resources as for physic resources. It is only democratic systems that ca ensure the marshalling of such a moral response.

The article is based on the keynote presentation by Prof M.G Menon, the Minister of State for Science and Technology and t President of the International Council of Scientific Unions, in t 7th Parliamentary and Scientific Conference organised by t Council of Europe in Ottawa (Canada) recently.

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considered fate worse than death that taints the gi for life. The rape of a boy, however, is mere shrugged off as another unfortunate incident— th sooner forgotten the better.

A girl is expected to take orders and obey. A boy encouraged to think for himself and make decision A girl is expected to cope with domestic problen and crises, but be guided by a man when it comes t business and financial matters or political wisdo and understanding. A boy, on the other hand, required to be worldly wise but completely helple at the home—unable even to stitch a button on h shirt. And, although some boys grow up to becom the best professional cooks, artists and musicians, is girls who are expected to have a flair for cookin and have an artistic temperament reflected, if i nothing else, then in decorating the interior of the homes.

Unwanted and resented by her parents as well a the extended family at birth, the girl child is brough up on left-overs. Her food, clothes and education ar inferior to that of her brothers. Her illnesses do nc merit medical attention, she does not deserv expensive medicine and care— leading to untimel death in the case of many. If the girl child survives th burden of work on her slender shoulders is heavy an crippling. She must work while her brother play She has no leisure and is more readily denied he childhood. She is shackled while her brothers ar free to do their own thing. She is reprimanded an punished for small mistakes and forgetfulness, whil her brothers are pampered and indulged by th family. It is not for her to question all this. For she i the lesser citizen of tomorrow who will perpetuat the vicious cycle once she herself gives birth to daughter. For by then, and more so by the time he son gets married and brings home a child bride with fat dowry, she will have been completely brainwashe and incapable of breaking out of this self-perpetuatin syndrome.

The author is a free lance journalist

Benefit—Cost Analysis Of A Social Forestry Project: A Case Study

B.K. Patnaik

The main thrust of the on-going social forestry works in Orissa is on extensive tree plantation with active involvement of the rural masses. Here is a case study of the Orissa Social Forestry Project. The author makes an attempt to work out a benefit cost analysis of the Project for the first phase period. On that basis, he evaluates the justification for investment on the Social Forestry Project.

INVESTMENT IN A project is supposed to change the status quo and the products originating due to this change are called benefits These benefits, in monetary terms are included in the revenue stream of the project. Project costs include values of all goods and services (land, labour, capital and managerial skills) used for establishing, maintaining and operating the project. All these project inputs valued in some monetary units as in the case of Revenue stream are included in the cost stream of the project. The costs and benefits are generally spaced over time from the inception of the project to its economic demise.

An attempt has been made in this article to make a benefit-cost Analysis of Orissa Social Forestry Project for the first phase period from 1983 to 1987 and on that basis to evaluate the economic justification for the investment in the project.

The ongoing social forestry activities in Orissa owe their its origin to the recommendation of the National Commission on Agriculture (1976) which suggested extensive forest areas with the active participation of rural population for meeting the fuel wood, fodder and minor forest produce and small timber needs of rural people. In view of the requirement of l investments for the massive social forestry plant activities, a Social Forestry Project was launch Orissa with financial assistance from the Swe International Development Authority (SIDA) u Indo-Swedish Bilateral agreement in 1983. project which completed its 5 year First Phase p from 1983-84 to 1987-88 with a reasonably succe note in nine districts of the State aimed at achi certain objectives like·

*Creation of village woodlots (VWL) in rev wastelands &. Panchayat lands, plantation u Reforestation Scheme (REFO), rehabilitation of deg forests (RDF) plantation under Forest Farmin Rural poor (FFRP) Scheme for rural landless families and free distribution of seedings of f fodder, fuelwood and timber species under Forestry Programme.

*Increase of fuelwood, small timber and m forest produce supply that could meet the forestry requirements of the rural people, gener of gainful employment opportunities giving s opportunities to women headloaders, creatio self-reliant production system where villager actively participate both as "producers" "consumers"

Project O

The actual total project cost for the 1st Pha estimated at over Rs. 2706 lakhs which in plantation costs (67% of total costs), sta establishment (20.6%), Vehicle, fuel and mainte (1.07%), Building and its maintenance (Training (1.4%), Research (0.4%) Publicity (1.1 Monitoring (0.79%).

Physical Achieve

In the first year of the project (1983-84), o 14.68 lakhs was spent towards preparatory wo

physical target was achieved under any of the plantation component during that year. During the remaining four years of phase I period, 18346 Ha. of lands was covered under Village Woodlot (VWL) schemes in 9 districts of the State involving expenditure of over Rs. 644 lakhs. Under Rehabilitation of Degraded Forest component, the total expenditure incurred during the phase I period was over Rs. 76 lakhs for 14184 Ha. of plantation in nine districts. These were community-oriented plantation programmes of the project.

Among the individual- oriented plantation programmes, the Forest Farming for Rural Poor (FFRP) Scheme covered 1509 Ha.of revenue supply lands that benefited 3144 beneficiaries during phase I period at a cost of nearly Rs 119 lakhs. Under Farm forestry component, nearly 350 lakhs people were benefited.

The physical achievements and expenditure incurred during different years of the first phase of the programme are indicated in Table I.

Criteria

Time and economic life of the project is a major parameter in calculating Benefit Cost (B/C) Ratio. The economic life of each species and group of species under the project has been accepted as recommended in "Social Forestry Project for World Bank Assistance" by Forest Department of Orissa. The method followed for calculating B/C Ratio relates to the Net Present value criterion. In this context, the present value Rule requires the use of some predetermined Social discount Rate, to discount future benefit and costs for the purpose of B/C study. The discount rate accepted is based on the social opportunity cost on capital investment which is assured to vary between 8% to 10% in Indian condition. This predetermined discount rate has been accepted as 10% for the present B/C study. One simple approach has been used to reach a representative figure of B/C ratio of the project.

The project consists of 3 sub-projects, i.e. Fuelwood, Bamboo and Timber. Each sub-project has different years of harvesting. The first harvesting year for fuelwood, bamboo and timber commences on the 6th, 8th and 31st year respectively. It i presumed that after the first year of harvesting, n cost is incurred towards each sub-project. Further the funds earmarked for such investments are quite specific. With these features of the project, the B/C Ratio can be calculated as follows.

Total projected cost of the project is computed till the first year of harvesting of each sub-project. Total projected revenue of each sub-project is calculated for the final year of harvesting i.e. till the economic life of each sub-project like fuelwood, bamboo and timber species. This projection is done by taking respective projected price and expected out turn of each species into consideration. The projected cost is determined with the predetermined 10% discount rate.

Projected cost at 10% Discount Rate

$= I\,(1+r/100)^n$

Where I – Initial Cost

r – Discount Rate i.e. 10%

n – Ist year of harvesting for each sub-project i.e. each species.

The assumptions made for the purpose of B/C study are:

The value of non-monetary products like fruits, fodder,wild and sown grasses, oilseeds, barks etc. are excluded from B/C study as they would be available freely to the villagers.

The benefits from individual-oriented components like Farm Forestry and Forest Farming for Rural Poor are excluded from economic values of the project produce as the beneficiary does not pay for the consumption.

The B/C study attempts to justify financial investments finally incurred on different plantation schemes of the project during 1983-1988 period. The cost, yield and price factors are analysed on the lines of recommendations made in "Social Forestry project in Orissa for World Bank Assistance"

Cost Factor

The project cost includes overall plantation cost alongwith establishment cost and cost of supporting activities like Research, Training, Monitoring,

Table I

Financial & Physical Break-up of S.F. Project (Phase I)

Year	*Actual cost*	*Physical Achievements (Ha/Lakh Noa)*				
	(Rs. lakhs)	*VWL (HA)*	*Refo (ha)*	*RDF (ha)*	*FFRP (ha)*	*FF (lakh no)*
1983-84	14 68	Nil	Nil	Nil	Nil	Nil
1984-85	159 42	1203	995	1287	67 9	14 95
1985-86	445 5?	3008	2516	3832	245 0	68 00
1986-87	688 59	6158 5	4596	4065	304 5	103.70
1987-88	1398 26	7976	5630	5000	891 5	162.62
	2706 48	18345 5	13737	14184	1508 9	349 27

Source: Project At a Glance (Phase I) Orissa Social Forestry Project (Sida Assisted)

Evaluation etc. The cost of individual-oriented plantation schemes have also been included even if their economic value have been excluded from benefit streams. The total cost estimate involves Phase I period of the project from 1983-84 to 1987-88.

Yield Factor

The forest species chosen for plantation under the project are fuelwood, timber, bamboo, fruit bearing species, etc. For the purpose of estimating the expected yield of the plantation, these species have been confined to four categories including firewood, timber and bamboo. For fuelwood species it is assumed that the first yield will start from the sixth year of plantation and will be worked out at five years interval in 4 coppice rotations. A return of 20 Kg. per firewood tree is taken for the first and subsequent felling cycles.

The main timber species like sisoo, siris, gamhar etc. grouped under timber species will be finally felled on attaining 30 years age when they can be used for domestic, industrial and agricultural purpose.

For Bamboo species, the first benefit will accrue on the eighth year of plantation with four years interval in four rotations. In each harvesting rotation five bamboos per clump are assumed to be yielded

The yield of rest of species grouped under other category are excluded from financial analysis of project since they are given freely to rural people. On scheme-wise-break-up, the benefits from Farm Forestry and Rehabilitation of Degraded Forests (RDF) plantations are excluded from the B/C estimation since they are either individual beneficiary-oriented plantation or not for future exploitation Hence benefits from VWL and Reforestation components are being considered for the B/C study. In these two plantation components an average of 65% survival is assumed during the first and subsequent harvesting period as observed from various surveys conducted during the first phase period.

Price Factor

The price required for the project calculations of fuelwood, timber and bamboo species are accepted in accordance with the price list as on 1988 of M/s Orissa Forest Corporation Ltd. The average prices of these three categories of species are computed from the price list of all the divisions in Orissa. For timber and bamboo, the minimum selling prices have been accepted. The price projections for each of the above species are done at the rate of 5% compound rate of growth for the economic life of the project i.e. 35 years as specified in the Forest Department Guidelines in its sensitivity analysis. With the aforesaid terms the average price of fuelwood species is calculated as Rs. 21.32 per quintal timber price being Rs. 28.00 per cft and bamboo price being Rs. 18.00 per 5 Bamboos at initial year of harvesting.

Table 2

Projected Cost and Revenue of S.F. Project, Orissa (F I) at 10 percent Discount Rate (Rs. in lakhs)

Species	*Cost*	*Revenue*
Fuelwood	2228.06	5893.07
Timber	11988 03	109812 01
Bamboo	191 75	1996 83
Others	1243 56	–
Total	15651 42	117,781.91

Ref:– "Social Forestry Project in Orissa for World Bank Assist Forest Department Govt of Orissa

Computati

The B/C Ratio of Orissa Social Forestry Projec Phase I period has been calculated in terms of above criteria, at 10% Discount Rate.

B/C at 10% Discount Rate = Rs. 117, 781.91 lakhs / Rs. 15651.42 lakhs =

Inspite of the exclusion of some non-mone benefits of certain forest species and s components, the B/C ratio of 7.52 shows the l productive potentiality and feasibility of investm in the Project.

Apart from the free distribution and enjoymen some forest produce, there are several factors in Social Forestry programme which are hi productive from socio-economic point of view. T are not monetarily assessed in the Benefit- analysis. For instance environmental benefits car be valued as there are no methods for assessing th in monetary terms. Further trees act as poter barriers against acoustic disturbances mainly in cities. Forest cover controls soil erosion, impr physical and chemical properties of soil and red the infiltration of wind-borne sand into fertile fie Trees have high degree of nitrogen assimila potential and also temperature moderating capa The employment generating capacity of So Forestry, mainly in subsidiary occupations, thro intensive use of minor forest produce, and absorp of rural massess in the new venues of forest activi by developing forest-based cottage industries is another positive factor of the project.

Energy And Environment– A Case Study

S.K. Das

The author underlines the importance of including environmental factors in planning for energy, particularly coal-based. Protective measures which may add to the initial cost, should receive more serious consideration. Ultimately, feels the author, there can be no compartmentalization of the issue and a holistic approach becomes an imperative in larger interest.

INDIA IS ONE OF THE foremost developing nations in all spheres. The growth of economy, income, population and urbanisation necessitate higher energy demand. The energy consumption and per capita availability is very low compared to most of the industrialised/developed countries in the world even after likely attainments of gross energy generation of around 275 billion KWH by the end of Seventh Five Year Plan against which the availability through utilities would be of the order of 252 billion KWH.

The energy sector has been recognised as a principal element of growth resulted in 30 per cent allocation of investment during Seventh Five Year Plan.

The energy resource can be both renewable and non-renewable. The primary sources of energy in our country are coal, lignite, oil and natural gas, radio-active minerals though some of non-renewable resources (coal) are abundantly available, there are bottlenecks due to their quality and uneven distribution.

During the last 35 years with the end of Seventh Plan commercial energy mix changed drastrically with the share and oil sector has taken the lead from 40 to 51 per cent and followed by electricity from 13 to 34 per cent while share of coal as a direct fuel comes down from 48 to 17 per cent. However, in real terms two thirds of electricity is generated from coal. During the next decades the direct use of coal and oil are bound to decline further. The share woul[illegible] taken up by electricity. The rural demand are lar[illegible] met by fuelwood crops wastes and dungcak[illegible] negligible cost. This itself is depleting forests [illegible] faster rate.

In the Five Year Plan a system view starting f[illegible] the exploration and exploitation of the prim[illegible] resources to their processing into energy prou[illegible] and optimum distribution to their consump[illegible] centres to avoid serious mismatch has been ta[illegible] But one aspect which is getting less importance in planning process is that every developmental act[illegible] engenders costs which often negate the ben[illegible] sought. Sustainable development requires b[illegible] planning and implementation to maximise benefits and to minimise the cost. The estim[illegible] power generation by the terminal year of Sev[illegible] Plan has been estimated at 252 billion KWH of w[illegible] around 168 billion KWH is coal based. Looking a[illegible] trend in power generation the likely coal based g[illegible] generation would be of the order of 273 billion K[illegible] The reliability, gestation period, submergenc[illegible] forest areas, having a variety of timbers, several genetic resources are the major concern of planners and coal based thermal power plants preferred to meet the growing demand of p[illegible] requirements.

Generally, the planners are of the view that head power station would be the one of the solutions to meet the growing demand. Technol[illegible] in various aspects like, geophysics, hydrology [illegible] have been identified to provide a wider choi[illegible] fields where mining may be easier and less c[illegible] rather than only concentrating on adjacent areas t[illegible] existing mines. The cost involvement tow[illegible] environmental damage due to this integr[illegible] developmental activities are not taken care of [illegible] As for example, the Singrauli area of Coal I[illegible] Limited has been made captive to power station[illegible] Singrauli Super Thermal Power Project (2050 M[illegible] Vindhyachal Super Thermal Power Project (3260 M[illegible] Rihand Super Thermal Power Project (3000 M[illegible] Anpara A. B & C (3130 MW), Obra 1550 MW), Renusagar Thermal Power Station (338 MW)

This coalfield has been divided into eleven mining blocks, having resources of little about million tonnes upto 600 metres depth. Total blocks have been sanctioned for the above mentio[illegible] power stations. The anticipated production t[illegible]

* Views expressed in this article are of personal nature

during the Seventh Plan is 23 million tonnes against Sixth Plan achievement of 10.7 million tonnes. The production by the turn of the Eighth Plan and Ninth Plan would be in the order of 42 million tonnes and 67 million tonnes respectively. The Table given below shows the production profile of mines. If the average stripping ratio is 4 m^3/tonne, the overburden production would be of the order of 168 million m^3/year and 268 million m^3 year respectively

Environmental Consequences

The environmental damages caused by mining include: Air, water, Biota, social equilibrium and land. The most affected part is land. Impact due to noise are not so significant.

(a) Air is polluted by dust raised from several causes starting from initital stage (blasting) to the consumption stage for generation of energy.

(b) The chances of interference with subterraneon water levels due to the proposed activities cannot be ruled out completely. The strata immediately underlying the bottom-most coal seam (Turra Seam) appear to contain a lot of carbonates. The value of PH has already been showing downward trend towards the acidity regime, and would be accelerated by the addition of new generating unit. The carbonates in the underlying strata which help in neurtalising, would move through bedding planes, fractured zones etc. This neutralising would depend only on the water recirculation into lake. Regular sampling and analysis of the lake is required to draw iso-pH contours. Siltation load and nitrate load from overburden are the sources of nitrates in water. The requirement of explosives would be of the order of 80,000 tonnes per year by 2000 A.D. as nitrate based explosives being used in this area. These nitrates retained in blasted material and are very soluble in water. The present level mitrates drawn from the lakes are wi limits but it is difficult to draw any conclu in absence of any study.

(c) The area is rugged and hilly. It has a heavy fo wildlife, although being depleted. The l percentage of population comprises backw communities including tribals. The 1971 ce shows that around 38% of the population co ted of backward communities of which tri population is about 40%. The number of villag be vacated for mining activities are 20, i.e. a 2350 families (approx). There are also insta that some families have been displaced onc twice earlier due to submergence by the Rih Dam, construction of Railway lines, the power stations etc. This shows the lacuna planning, i.e. not taking a holistic approach o area. There is no doubt that people dir affected by loss of land etc.would be taken ca by the rehabilitation packages. An organ socio-economic survey is an urgent necessi appraise the impact of the 'boom town effec the larger population, especially the back and tribal communities to formulate the sures required.

Land

Mining activities directly affect the land use c area. These activities will not only affect the e forest growth but also destroy the landscape.

In order to maintain the ecological balance, of programmes are to be taken up by the

Table 1

Mine	Reserves (MT)	Ultimate capacity (MT/Yr)	Average Stripping Ratio (M^3/t)	Anticipated produciton (MT) 89-90	Anticipated produciton (MT) 94-95	Anticipated Production (MT) 2000 A.D.
Gorbi	24 0	1 0	1.47	1 5	1.0	1 0
Jhingurda	121 0	3 0	1.15	3 20	3 0	3.0
Bina	108 0	4 5	2 20	4 50	4 50	4 50
Kakri	72 0	2 5	2 25	2 50	2 50	2.50
Jayant	349 0	10 0	2 60	8 50	9 00	10.00
Amlohri	319 0	10 0	4 40		4.00	10 00
Dudhichua	545 0	10 0	3 29	2.35	8.00	10.00
Khadia	299.0	10 0	4.08		4.00	10.00
Nighahi	395 0	14 0	3 76	0 45	4.00	14.00
Others		2.0			2 00	2.00
Total	2032.0	67 0		23.00	42.00	67.00

industry and adequate funds for this purpose should be provided. The present day concept of land use in most of the mining projects is 'afforestation' on all excavated land irrespective of its pre-mining use and post-mining inter-relation with the surrounding land. There are laws in the United States which state 'All surface coal mining operations must be backfilled, compacted (where adviseable to ensure stability or to prevent leaching of toxic materials) and graded to the approximate original premining landscape. In Indian context, this task has to be taken as a challenge and post-mining land use must be environmentally compatible with surrounding undisturbed areas. Coming to the point of afforestation, the concept has to be changed in such a way that post mining land use must be of public interest and of economic use and benefit to the society in the long run. Instead of converting land for afforestation purpose, post, mining land can be converted into cropland, agricultural land, wildlife habitats etc. depending on the compatibility of the surrounding.

The pit head super thermal power stations of National Thermal Power Corporation (NTPC) and the U.P. State Electricity Board (UPSEB) and Renusagar Power Company are linked to the Singrauli Coalfields. The likely capacity would be of the order of 20,000 MW of which 13,328 MW capacity plants have already been installed. These plants also pose serious problems on environment. The great environmental threat from power plants are fly ash, emissions from stacks of the plants, effluents from the plants, etc. It has been estimated that 1 MW will produce 2.5 tonnes of fly ash per year. The disposal of fly ash in thermal power plant is a great concern of environmentalists. The approximate requirement of land for ash disposal of 1 MW Plant has been estimated at 1 acre. These ash ponds when silted up and abandoned are a perpetual source of dust pollution unless stabilised by vegetation. These ash ponds are a threat to Govind Ballabh Pant Sagar, as leaching of water from ash pond carries toxic heavy metal ions. The lake side is most vulnerable and highly fragile. The Gobind Ballabh Pant Sagar is the only source of water for all the activities of mining and thermal power stations. A sizeable number of people would be affected on disposal of fly ash from Super Thermal Power Stations and for coal mining activities.

Hazards

Coal requirement for the committed power stations would be of the order of 1 65 lakh tonnes per day. Various kinds of pollution will be caused by the emission of oxides of elements like sulphur, nitrogen and carbon from complete combustion of coal. In addition, large quantities of unburnt carbon will also be generated due to incomplete combustion of The sulphur dioxide production would be very n on higher side. The sulphur dioxide emission fron committed power stations would be around tonnes per day. These sulphur dioxide will com with moisture to form sulphuric acid mist. This will remain in vapour state under prevalent temperature conditions and become conde with the fall of temperature. The 'ACID SMUT' w be formed due to the presence of unburnt ca particles. The oxides of nitrogen production w be of the order of 2700 tonnes per day and this w be converted to nitric acid vapour which will join the acid smut.

The amount of carbon dioxide emission woul of the order of 4.9 lakh tonnes per day. If this sustained its content in the air, there will be seri consequences. There will be change in temperat between different layers of the atmosphere earth as a result of huge emission of carbon dio and a situation will come when there will be fee rainfall or excess rainfall and great increase mountain building process inevitably connec with earthquakes and valconic eruptions. The cor bution of particulate matters will be about 700 ton per day. The emission of carbon monoxide increase the pollution loads in the Singrauli surrounding areas.

The emission load due to the developme activities both for mining and for thermal po station activity would be enormously high. It therefore, very much essential to provide Flue Desulphurisation (FGD) plant and de-NOX systen all the plants, even though the project cost incre by 20-25 per cent. It has been noticed that so power engineers are not in agreement for introd tion of costly system as it upsets the viability of projects. But does a country like India which is at threshold of major development can overlook th aspects ? It is true that resource constraint is th but we cannot afford to pollute the environment to disturb ecological balance only due to involvement

A 'yard stick' can be used by planners decision makers to incorporate the environme factors into the energy planning and decision ma processes and allow them to take into account characteristics of each site. The Singrauli warrants a carrying capacity study in terms of s optive and asimilative capacity for sustain development before putting up any power statio this area.

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Storing Grains, the Cooperative Way

Sarala Gopalan

Provision of a network of warehouses and godowns both in Public and Cooperative Sectors, forms part of the Action Plan announced by the Government early this year. The author recalls the rapid strides made by the cooperative movement in India and suggests measures to realise the objective of storage by the cooperatives to meet the requirements of the rural producers and consumers. Striking an optimistic note, she says, if past performance is any guide, the cooperative sector holds great promise.

THE THRUST OF economic development in India is on agriculture. With 75 per cent of the total population depending on agriculture for their livelihood, this thrust is critical in the overall development. All the Five Year Plans have devoted a large proportion of the expenditure in the public sector to agriculture and allied activities for the infrastructure and the inputs required for agricultual development, the institutions and organisations required for delivering various services for the sector. Thanks to this concentration, India has been able to become self-sufficient in the matter of food.

A new strategy for agricultural development was evolved in 1966-67 with emphasis on science and technology. Successful implementation of this strategy envisaged timely and adequate supply of modern inputs at the farmers' doorsteps. This required a strong organisational network for the delivery of the inputs and cooperatives became the natural choice for organising the delivery system. Apart from being the major delivery agent, cooperatives also had to play other important roles in relation to trade, storage, credit and miscellaneous services.

The cooperative movement in India is one of the largest in the world. There have been two major streams of cooperative activity – the multi-ser[vice] cooperatives and the functional cooperat[ives] concentrating on a single activity. The [...] cooperatives of Gujarat and the sugar cooperative[s of] Maharashtra have become legendary names in [the] country. The multi-service societies and the cr[edit] societies have been the major backbone [of] agriculture and have carved out for themse[lves] various degrees of excellence in different parts of [the] country

About 3,50,000 cooperative societies of all ty[pes] with a membership of 150 million and a work[ing] capital of Rs 480,000 million are operating in [the] country at present. Their major achievement a[s] intrastructure for agriculture is borne by the fact [that] they account for about 33 per cent of the distribu[tion] of fertilizers distributed in the country, a cr[edit] disbursement of Rs. 440,000 million and marketi[ng] Rs. 40,000 million worth of agricultural produc[e].

The National Cooperative Development Corpora[tion] (NCDC) was set up in 1963 under an Act of Parlian[ment] to promote and develop cooperative programme[s in] various economic activities in the rural areas. [It is] responsible for planning and promoting [the] development of cooperatives on a country-wide [basis] for marketing, processing, storage and suppl[y of] agricultural inputs to the farmers. It also h[as the] specific objective of promoting cooperatives fo[r the] weaker sections based on their economic activ[ities] like fisheries, poultry, handloom, etc. and spe[cial] cooperatives for groups like the tribals and sched[uled] castes.

Godown is a basic infrastructural facility need[ed by] every agricultural cooperative. The cooper[ative] sector controls nearly a quarter of the wareho[using] capacity available in the country. This account[s for] 13.32 million tonnes out of 55 million tonnes cap[acity] available in the country from various sources. [This] capacity build-up is the result of systematic [and] sustained efforts put in by the rural cooperatives [with] the support of the NCDC in terms of finance thro[ugh a] series of funding projects.

Strat[...]

The major objective of storage by the cooper[atives] is to meet the requirements of the rural prod[ucers] and consumers to get them a better reach t[o]

The 1971-81 decade witnessed a marked increase in ıe proportion of urban population in India. This ecade also witnessed a substantial decline in the roportion of labour force engaged in agriculture, hich itself would, partly atleast, account for the ıcrease in urban population.

Over the years, there have been major changes in e distribution of urban population according to ifferent size classes of cities. This is shown in ıble 2. While only 23 per cent of the urban ›pulation lived in Class I cities in 1901, in 1981 more an 60 per cent of the urban population lived in class ities. And the proportion of people living in smaller ze classes has shown steady decline.

This of course should not lead us to conclude (as ıs often happened) that the big cities are growing ster than the smaller ones. This false impression ıs often persisted because people are oblivious of e fact that tabulations are based on size classes ther than on individual cities. This means that ere can be upward movement of cities from a lower ze class to a higher one. Except for Class I in all the her size classes there is both entry and exit of wns. Whereas, in Class I there is only entry and no it, thus continually swelling its size.

To make things clearer let us examine the share of ass I population held by the largest cities. Table 3 ves the picture for the biggest seven cities, in 1971 d 1981. An examination of the table shows that only ngalore registered an increased proportion. Delhi aintainted the same proportion both in 1971 and 81. In all other cities the proportion has declined. It ll be quite clear that the big cities are not exploding commonly (and erroneously) believed, at least in lation to other cities and towns. India has no imate city and no city holds any disproportionate are of the urban population, urban wealth, oduction or consumption.

It is also necessary to make a distinction between owth of existing urban centres and the addition of w towns. Part of the increase in urban population has been due to the addition of new towns. There were as many as 1023 new census towns in India in 1981 having a population of about 10 million people. These new towns accounted for roughly one fifth of the net increase in the urban population of India during 1971-81. However, it must be remembered that these new census towns are not new habitations, they are simply reclassified villages or outgrowth of urban peripheries.

Table 3

Percentage Share of Class I Population held by the Largest Cities

City	*Percentage 1971*	*Share 1981*
Calcutta	11.6	9.8
Greater Bombay	10.0	8.8
Delhi	6.1	6.1
Madras	5.3	4.6
Bangalore	2.8	3.1
Hyderabad	3.0	2.7
Ahmedabad	2.9	2.7

Source: based on census reports.

There were 3245 urban agglomerations and towns as per the 1981 Census of which 216 were Class I cities accounting for over 60 per cent of India's urban population. Among the "million-plus" cities Bangalore recorded the highest growth rate of over 76 per cent. Bangalore has witnessed a boom in the construction activity and it has also been a haven for industrialists, both public and private.

India's level of urbanization as well as changes in the level of urbanization have been very much in line with the historical trends worldwide. At each higher and higher level of income there has also been a higher and higher level of urbanization. And a crosscountry comparison would show clearly that the low-income countries are also the less urbanised. Consistent with its low income, India's level of urbanisation is also low. Even among the different

Table 2

Urban Population by Size Class of Towns 1901-1981 (in percentage)

Year	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*	*Class VI*
1901	22.9	11.8	16.5	22.1	20.4	6.3
1911	24.2	10.9	17.7	20.5	19.8	6.9
1921	25.3	12.5	16.9	18.9	19.0	7.4
1931	27.4	11.9	18.8	19.0	17.3	5.6
1941	35.4	11.8	17.7	16.3	15.4	3.4
1951	41.8	11.1	16.7	14.0	13.2	3.2
1961	48.4	11.9	18.5	13.0	7.2	1.0
1971	55.8	11.3	16.3	11.3	4.7	0.6
1981	60.4	11.7	14.3	9.5	3.6	0.5

Note: Class I is population 100000 and over, Class II is 50000-99999 Class III is 20000-49999, Class IV is 10000-19999, Class V is 5000-9999, and Class VI is under 5000

Source: Census reports.

states of India there is strong association between the levels of urbanization and economic development. The most developed states are also the most urbanised. And Maharashtra with the highest urbanisation level of 35.03 per cent is also, by and large, the most developed.

For any meaningful discussion of the urban process it is very important to make a distinction between the *rate of urbanization* and the *growth rate of urban population*. Rate of urbanization is simply the rate of change in the proportion of urban population in relation to the total population. Theoretically it is possible to have zero rate of urbanization (or absolutely no change in the proportion of urban population) even when urban population is growing rapidly. This would happen if both rural and urban population are growing *pari passu*. The growth rate of urban population, on the other hand, is simply the rate of addition to the existing urban population, at different points of time.

This is not a mere semantic distinction. This distinction is very essential to clear the confusion that often prevails over discussions of urbanisation process.

The rate of urbanization is not high in India. The proportion of people living in urban areas has not shown any sudden and dramatic changes over the years. Rather, as mentioned above, the proportion has been going up in a relatively slow manner.

But the growth rate of urban population has been quite significant. During the 1961-71 period the urban population of India increased by 38.2 per cent and in the 1971-81 decade by 46.0 per cent. A good part of the growth has occurred through the natural increase in population. It must also be remembered that given the large base of urban population, even a modest growth rate would imply a significant addition to the urban population, in absolute terms.

The urban problems are not all resulting from increasing city population alone. Much is simply the outcome of outright mismanagement and faulty planning. To give one example, cited by the Report of the National Commission on Urbanisation itself, in many cities barren land is converted into gardens at immense cost, while fertile land is smothered under concrete and asphalt. There has been no proper land use planning at all. Similar is the case in the management of urban transportation, sewerage and sanitation etc. where civic officials try to solve the problems through stop gap arrangements and crash programmes without any long term perspective.

While people are decrying the so-called urban decay they tend to forget that the rural scene is not a shade better. In spite of all the problems of urban expansion, the cities are in a far better position in terms of infrastructural facilities, civic amenities and the like. Indeed, there has always been a bias in the development pattern, often tending to generate regional and sectoral imbalances. This is par[t] stemming from the fact that cities are host to the va[st] majority of government officers, ministers a[nd] political bigwigs who would certainly make efforts [to] enhance the quality of the urban environment. T[he] rural denizens, unfortunately, have no su[ch] spokespersons.

Increased mechanisation of farming operatio[ns] drives the rural surplus labour into the cities [in] search of jobs and many of them have got bett[er] earnings and better living conditions in the citi[es] than they would have ever experienced in the erstwhile country setting. Stagnation in t[he] agricultural sector and shrinking opportunities in t[he] rural areas compel people to move to the green[er] pastures of the city. But given the already pitiful livi[ng] conditions for many in the cities, migration to t[he] cities would probably point more to the pauperisati[on] of the countryside rather than the enrichment of th[e] city.

But it would be totally fallacious to maintain that [it] is only the poor sections who migrate to the citie[s]. Opportunities for higher education or care[er] advancement being hardly available in the rur[al] setting people from the affluent and upper echelo[ns] of society are often compelled to move to the citie[s]. There has been an urban bias in the developme[nt] plans, and this urban bias seems to perpetuate itse[lf] unless deliberate and well planned efforts are mad[e] to provide a suitable and rewarding environment [for] the professionals in the countryside and also [to] develop the social infrastructure there. Moreover, [if] we are to effect a more balanced distribution of urb[an] centres, efforts will have to be made for t[he] development of small and medium towns and [to] direct the migrants to these, by making them mo[re] attractive vis-a-vis the giant cities.

There is also no basis in the belief that migrants [to] the cities are depriving the local population of th[eir] opportunities. Keeping the migrants out—if it [is] possible at all—would not simply improve t[he] condition anywhere for anyone. However, peopl[e's] perception is often different from the realities a[nd] the erroneous notion that migrants can deplete t[he] opportunities of the local populace, has often led [to] unrest and agitation against the outsiders. This h[as] happened in states like Assam, Maharashtra a[nd] Karnataka. Reverberations of this have been heard [in] several parts of the country. The fact that t[he] migrants swell the wealth and income and enhan[ce] the prosperity of the urban areas is often lost sight [of]. Migrants are often viewed as passive consume[rs], their role as producers often totally forgotten. The[re] is no hard evidence suggesting that the lives of t[he] urban natives or the new migrants into the c[ity] undergo any deterioration owing to migration, [at] least if they really settle down. However, if t[he] migrants move in and move out and are also, whil[e in] the city, on the move searching shelter and searchi[ng]

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Electrification in Lakshadweep

K. Gopinath

SUHELIPAR, THE LARGEST uninhabited island, about 82 hectares, in Lakshadweep has been electrified thanks to the power generated from non-conventional solar photo voltaic power plant. This island of ever green coconut palms situated about 54 Kms. south-west of the capital island Kavaratti is surrounded by the largest lagoon which is undeniably picturesque. An expert svrvey has revealed that Suhelipar is well-qualifed to become a national maritime park. It is being developed into an international beach resort. The placid lagoon and the sea beyond the reefs around the island are good fishing beds. Electrification of this island is a boon to mariners, tourists and fishermen of the nearby islands. Another uninhabited island Bangaram, the renowned international beach resort with a land area of about 50 hectares was electrified fifteen years ago.

Of the 36 islands in Lakshadweep covering a total land area of 32 sq. Kms. only ten are inhabited spanning over 400 Kms. There are no mountains, rivers or streams in these flat and sandy palm fringed islands of the Arabian sea.

No hydro-electric project is possible in this Union territory. Electricity was only a dream to the islanders. But their dream came true when the southern-most island, Minicoy with an area of 4.4 sq. Kms. was electrified in 1962 heralding the begining of a new era in the history of Lakshadweep. Following this, Kavaratti, the centrally situated island of 3.6 sq. Kms. was also electrified in the same year. All the other inhabited islands except Bitra were electrified between 1963 and 1974. Seven year ago, a new chapter of progress was ushered in with the electrification of the smallest inhabited island Bitra with an area of only ten hectares and a population of about 200 at present.

To begin with, only limited hours of power supply was provided in some of the islands. With the augmentation of power generation, supply was raised to round the clock by the middle of the Sixth Five Year Plan. Lakshadweep has thus achieved the unique distinction of being the first archipelago in the world to provide power supply to all its inhabited islands round the clock. This apart, in December 1984, all homesteads have been provided with electricity.

The Government strategy aims at ensuring adequate energy supply at minimum cost achieving self sufficiency and protecting the enviornment adverse effects. The only source of power gene in Lakshadweep was from diesel generators ca very high power cost, almost ten times that of th in the mainland. Despite this, electricity is sup to the islanders at a subsidised rate of sixty pai unit.

Lakshadweep Administration is very keen to non-conventional source of energy in all the Accordingly the first 5 KW photo Voltaic p station was commissioned in Bitra in may 1983. then power supply is provided to the inhabita Bitra during day time from this plant and fro existing diesel generating set at night. Wit augmentation of power generation, public lights are made available in all the inhabited isl

The household sector is the largest cons accounting for sixty per cent of the total e consumed in Lakshadweep. Power is utilised houses mainly for lighting. The recent trend a the islanders shows increased usage of va electric gadgets such as fridge, cooking range et consumption also shows steady increase. The p generated will be grossly insufficient in thi developing territory. Augmentation has, ther been taken up.

Harnessing the sun, wind and waves, it is h will completely phase out diesel generation Lakshadweep. This will cut down fuel cos prevent pollution. It is expected that the island by the year 2000 AD get all the energy they need non-conventional sources. There is a proposal for a pilot project of 20 KW aerogenerat Kavaratti. Another 3 KW set is also being instal Bangaram. Establishment of a major one Mega ocean thermal energy conversion plant is consideration. Tapping of wave energy is also tried out. The ocean resources are capab providing the islanders a bright future for dev ment.

Lakshadweep has been a no industry area. Wi availability of electricity a few small scale indu have been established. Adequate power suppl surely boost tourism and industries includin and copra processing thereby providing emplo to the unemployed youth in this Union Territo

The author is a free lance journ

Book Review

RESOURCE MOBILISATION AND ECONOMIC DEVELOPMENT: A REGIONAL PERSPECTIVE, P.S. Raikhy and S.S. Gill (Eds), Guru Nanak Dev University Amritsar PP. V+227.1988, Price Rs.75 (Paper Back Rs. 65)

In a mixed economy, a plan in real terms is meaningless without a corresponding financial plan. The main problem is to. mobilize surplus in the economy which can be utilized either by the public or private sector for development. In a federal country like India, financing of the plans largely depends upon mobilisation of resources by the States.

The book under review is collection of 11 articles which were originally presented at a ICSSR-North-West Regional Centre sponsored seminar organised by the Punjab School of Economics, Guru Nanak Dev University, Amritsar in May 1985. A few more (three) papers were invited to fill the gaps. The papers have been arranged to present the thematic unity.

The first paper discusses general issues regarding capital accumulation and economic development and makes a plea for bold initiative to mobilise resources at the State level. Mobilisation of economic surplus for onward channelisation into productive uses by the State can be done through (i) additional taxation, (ii) additional public borrowings, and (iii) through generation of surpluses in the public sector and State controlled cooperative enterprises. For additional borrowing financial institution can be insisted upon to stick to RBI guidelines of advance-deposit ratio. There is a big scope to mobilise surpluses through efficient management of State controlled cooperative enterprises. The State administration must take a bold initative.

Next two papers cover different aspects of financing of State plans and fiscal policy with respect to agricultural sector. The general argument that states have failed to mobilise additional resources from the agricultural sector, is a wrong motion. There exists a ceiling on agricultural land which limits the scope of income of agricultural sector. No such restrictions exist in non-agricultural sector. If there are still big landlords, the solution lies not in imposing taxes but in affective implementation of the ceiling act. Moreover rural sector share of indirect taxes comes to about 46 per cent which is by no means inadequate from 65 per cent population engaged in agriculture contributing 35 per cent to net domestic product. For mobilising financial resource for development, therefore, there is need to use the existing instruments for resource mobilisation to their optimal point before adding new instruments which are in some sense laregely untapped reservoir in an existing set of fiscal instruments. How this tapping is done will remain a political issue.

Another two papers concentrate on the role of public sector and foreign remittance in resource mobilisation. Public sector was envisaged as a source of resour mobilisation, besides the considerations of rapid econo mic growth with stability and social justice. Unfortuna tely their role has not been significant in resour mobilisation due to over investment, under-utilization capacity, nature of capital structure, inefficiencies and i appropriate price policy. Efforts may be made to increa the capacity, to reduce inefficiencies and wastages a costs. Over staffing may be absorbed in future expa sions. Pricing policy should be made more scientific a prices need upward revision in view of rates prevaili in other states If at all subsidised supply is to be give to some section due to deliberate government polic losses due to deliberate public policy may be estimat and distinguished from the losses due to inefficien and corruption etc.

The subsequent six papers cover the role of taxes an financial institutions in resource mobilisation. Almost a these studies come to the conclusion that there is sufficient scope for improving the tax administration an eliminating the laxity in tax collection to meet th growing need of resources for development. Black mone is not only a problem of economic policy rather it has als constitutional and legal dimensions, political dimen sions, industrial and commercial dimensions and mo importantly social and a moral dimensions. Many step taken in the past to eradicate black money and ta evasion failed to achieve the desired results due t political and administrative set up. Consequently. parallel economy is still operating. Unless and untill, al those engaged in the task of plugging black money pledg themselves to sincerely go about their job, all legal an punitive measures to check it may prove futile. The whol system of checks and controls aggravates shortages an leads to a monopoly situation. As a result, black mone becomes a part of the social life. Thus fundamentally th remedy lies in the general economic development, risin production so that every thing is easily and readil available.

Last three papers deal mainly with Centre-Stat financial relations in the context of North-West region i general and Punjab in particular. Notwithstanding th need for redressing the regional imbalance through fisc transfers, there should be explicit rewards for mobilisa tion and effective untilization of resources by States. Thi would require complete restructuring of the criteria o fiscal transfers ensuring consistency between overa national social objectives and control transfers. There i considerable scope for mobilising additional resources i the State by making better use of their powers enshrine in the Constitution. The decentralization and democra tization of planning process increased participation o various social and economic groups would help in greate mobilization of surpluses for development. In th resource allocation from Centre, due weightage should b given in tax efforts, economy and efficiency. No doub balanced regional development requires more resource in the backward states but care should be taken for th best use of resources by the backward states. Develope states must also get reasonable share of taxes so th resource mobilisation efforts are not discarded. Gra

may be given mainly on the basis of backwardness and speical problems. It will be more appropriate for resource mobilisation if a system of matching grants is adopted

The real contribution which the editors made to this volume is an excellent introduction to the subject. The volume covers a wide spectrum of the resource mobilisation. It is very satisfying that the collections included are indepth studies on the subject and this provides deep analysis on the facets covered. Hence this volume should be useful to both the researchers and policy framers and is bound to stimulate further discussion in the area of resource mobilisation at the regional level. General get up of the book is good, except for some slips in printing.

Gursharan Singh Kainth

Rural Poverty and Area Planning by Dr. I. Satya Sundaram: Published by B.R. Publishing Corporation, Delhi, 1989, pp 378

Poverty and unemployment are the multidimensional mosters of India. By stepping up the rate of growth without decentralised planning with social justice, we cannot possibly help reducing the magnitude of poverty, unemployment, income inequalities, regional disparities etc. We can attack these monsters only by utilising the natural and human resources through the use of appropriate technology to rural condions. In other words, the strengthening of democratic institutions, like panchayat system, together with people's participation in planning and programme implementation with adequate technical and financial resources would go a long way in tackling rural poverty of India. The democratic institutions should act as a conduit of people's active participation at all stages of planning process and implementation.

The edited volume 'Rural Poverty and Area Planning' by Dr. I Satya Sundaram is a collection of thirty seven articles written by economists and social scientists. These were presented at the National Seminar held at Machilipatnam (A.P.) on "Rural Poverty and Area Planning" sponsored by the University Grants Commission during February 1988. The aim of these papers is to focus attention on the rural poverty and unemployment as well as the measures taken by the Planning Commission to alleviate them. Three broad issues are considered in these articles. First, it relates to the micro economic context. Second, lessons accrued from the programmes on poverty, unemployment, etc. Third, the directions in which the programmes need to be expanded, restructured and integrated with the over-all development process.

The first fourteen articles in section one mainly deal with rural poverty and area planning. Section two consists of ten articles on various welfare schemes of the *government on poverty alleviation* and their appraisals. Section three includes t[illegible] articles on general problems like finance, technolo[gy] utilisation, rural power structure, impact of la[nd] legislation etc. Lastly, section four has three articl[es] on voluntary action and people's participation [in] development programmes.

The contributors hold the view that even if the an[ti-]poverty programmes are well-conceived, they are n[ot] going to bring any benefit to the poor unless t[he] institutions meant to assist them are restructured a[nd] strengthened democratically with social justi[ce]. Thus, the systematic transformation in regard [to] institution building, strategies, policies a[nd] programmes, and implementation, etc. is necess[ary] to ensure the flow of developmental benefits to t[he] target groups. The contributors opine that econon[mic] growth alone, however, rapid cannot solve soc[ial] problems and banish poverty and unemploymen[t].

The book has comprehensive bibiography to act [as] *a ready reference to the future researchers in th[e]* area. The articles are thought-provoking and shou[ld] act as eye-opener to the planners, policy-makers a[nd] others interested in these areas of vital importan[ce].

Dr. M.C. Pa

(Contd. from page 3

employment, such a flotsam and jetsam of the urb[an] population can become a social liability.

Most of the common views of the urban sce[ne] tend to be emotive and alarmist in tone, as thou[gh] there is an impending doom. In order to check [the] migration some have even mooted the idea of issu[ing] passports to those who want to enter and stay [in] certain cities. Such crazy ideas, based as they are o[n] poor and faulty understanding of the intricacies a[nd] complexities of urbanisation can only aggravate t[he] situation not only for the urban dweller but also f[or] their rural counterparts. The jingoists are prescrib[ing] remedies without diagnosing the real ills plagu[ing] the cityscape.

And finally, those who believe that there is [an] urban explosion should not forget that there is a rur[al] explosion as well and that these are simply t[he] outcome of the runaway population growth. A[nd] unless we are in a position to curb the rising tide [of] population, mere attempts at checking the urb[an] growth would be almost meaningless, and may ev[en] be counterproductive in the long run.

It must also be remembered that most of the urb[an] problems we are facing today are simply a spillov[er] from the rural problems: problems of pover[ty,] unemployment, lack of basic infrastructure etc. A[n] attempt at finding a lasting solution to the so calle[d] urban decay must start by resuscitating a[nd] developing the countryside itself.

The author is Assistant Professor in Sard[ar] Patel Institute of Economic and Soci[al] Research, Ahmedaba[d]

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Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana has convened an essay competition open to ladies only.

The subject of the essay is – Girl in Indian Society.

There will be three prizes– Ist prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so

The last date for receipt of the entries will be 25.9.90.

Indo-Soviet Co-operation
Rural Water Supply

yojana

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September 16-30, 1990 Rs.

Development Diary

POLLUTION CONTROL

The Electrostatic Precipitators (ESPs) developed by the Ranikhet unit of the Bharat Heavy Electricals (BHEL) seek to combat industrial pollution. It is claimed that the Precipitators are better than some of the industrial pollution devices developed by the advanced countries. They reduce the release of hundreds of tonnes of flyash to almost nil in thermal power stations. Besides Indraprastha Power Station, the electrostatic precipitators function at the thermal power stations in Gandhinagar, Badarpur, Koradi, Ennore, Kothagudam and Ramagundam.

NEW LASER

The Centre for Advanced Technology, Indore, Madhya Pradesh, is engaged in research and development work in the area of advanced technology. The Centre has successfully developed a 70 Watt carbondioxide LASER, with an articulated arm, for use in open surgical procedures, and a 400 Watt multibeam carbondioxide LASER beam for heat treatment, and cutting and welding of thin metal sheets.

RURAL TECHNOLOGY

The National Research Development Corporation (NRDC) has evolved the concept of Rural Technology Demonstration-cum-Training (RTDT) Centres. These Centres are set up in voluntary or governmental organisations on a regional/State-wise, technology-category-wise basis. At these Centres, a cluster of technologies suitable for adoption in a particular area are demonstrated initially by scientists/engineers from the R&D Institution which developed the technologies. The Corporation's contribution includes supply of necessary equipment, demonstration of technologies under actual field conditions, training of artisans and skilled workers on the new/improved technologies, awareness creation and interest stimulation through publications and mass media. Thus, the Corporation's role is that of a catalyst, creating awareness by actual demonstration of appropriate rural technologies for overall development. The Corporation has so far set up 35 such centres throughout the country.

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Fighting Price Rise

Madhu Dandavate

COMMITTED TO TACKLE the real issues confronting the economy in general and the common man in particular Government will spare no effort to rein in the prices. In order to have a correct understanding of the price behaviour, one must understand the scenario that existed when the new Government came.

The scene was scary. As on 1st December 1989 the deficit was a staggering Rs. 13,790 crores. External debts including NRI deposits were of the order of Rs. 83,000 crores. The debt service ratio was 27 per cent. It was expected that this external debt of Rs. 83,000 crores as on 1st March, 1989 would cross Rs. 1,00,000 crores by the end of the financial year, with the debt service ratio going upto 30 per cent. This means that one-third of our export earnings would be spent, not on development and growth but, on only servicing our debts. That is, meeting our interest liabilities.

As regards foreign exchange earnings, the reserves were only worth one point five months of import whereas the stable position is around three months. The inflation rate was 8 per cent. Food stocks had dwindled down to 11 million tonnes. The balance of payments position was disastrous. Foreign exchange reserves were of the order of Rs. 6,000 crores equivalent at the end of November.

Many economists, trade unionists, peasant organisations and industrialists, including small industry groups had wanted that if the inflationary pressure on the economy is to be checked and the prices prevented from rocketing upwards, the priority should be to restrain the deficit.

RESTRICTING THE DEFICIT

Here, one important fact has to be taken note of. The deficit projected by the previous Government was of the order of Rs. 7,337 crores. Now, the actual deficit mounted to such an extent that, on 1st December, 1989 itself, it became Rs. 13,790 crores. The revised estimate of the deficit which we had projected was of the order of Rs. 11,750 crores. And for the entire coming financial year, we have tried to restrain it at Rs. 7,206 crores. In spite of all the problems, the Government has been able to restrain the deficit within manageable limits.

The options were clear. One was the soft option. The option of not mobilising resources, not levying taxes, not touching petroleum and petroleum products or diesel. The other one was to try and restrain the deficit by mopping up more revenue and at the same time, restrict governmental expenditure.

The harder option was tried in the interest of the economy. At the cost of popularity, a perspective was built up by which deficit was restrained to a lower level, thereby, preventing prices from going ahead– far ahead of where they are today. The exercise in resource mobilisation was therefore taken up.

The duty of items only of elitist consumption was increased. This was because the Government is more concerned about one square meal a day for the poorer people than providing ice creams to rich people in five star hotels.

In order to reduce the deficit, the unpleasant task of levying certain duties on petroleum products had to be taken. But there also precautions were taken to see that Naptha which is used in fertilizers for the agricultural sector was not touched. Kerosene also was not touched which is used by housewives in urban and rural areas. As a conscious decision, LPG connections and gas which is used by agriculturists and others were also not touched. Similarly furnace oil, which is used by small scale industries was also exempted.

If one looks at the entire structure it can be found out that as a result of the rise in prices of petrol and diesel, only half per cent is the rise that actually enters the price of the commodity. It is due to other factors that the price rise has taken place.

THE CORPORATE TAXES

Some companies earning large profits– which can be considered as capital intensive companies–were somewhat angry with the Government. Their anger was tempered by putting their own argument around their neck. Industrialists and businessmen have always said that if the direct taxes in the corporate sector were reduced, there will be a better compliance and a higher collection of taxes.

The rate of taxation in the corporate sector was reduced from 50 to 40 per cent. The company managers and their owners were told that the Government would like to test their own proposition that if there is a decline in direct taxes, there would

be better collection. So certain devices like investment allowance, investment deposit account schemes, which were the incentives given to capital intensive industries to get taxation relief proportional to the investment were abolished. Becuase of these allowances the paradox was that the largest profits and the lowest taxes went hand in hand and hence we had to stop that.

Many of the capital intensive companies were paying zero tax. This is now no longer possible. In order to bring them into the tax net the corporate sector was clearly told that their incentives on investment will be abolished so that they come into the tax net. Then on the basis of their performance it will be tested whether the tax payment is proper. As a result of this, around Rs. 800 crores will be mopped up from these companies in the next year. The accrual during the last year under this head was zero.

One could imagine what would have happened if this resource mobilization was not done and the deficit be allowed to go beyond Rs. 10,000 crores or 12,000 crores. In that case the prices would have rocketed way beyond all considerations– and, also it would have been a long term phenomenon. Fluctuating prices, at least, can be checked in times to come.

There is one more aspect. Just as large deficits are responsible for increasing prices, excess liquidity is another reason. This must be controlled as well.

TAMING THE PARALLEL ECONOMY

This huge parallel economy that we have must be tamed, if you want to control excess liquidity. According to the report of the Institute of Public Finance and Policy, Rs. 40,000 crores black money is generated every year by the parallel economy– as unaccounted black money. And the report also makes it clear that this does not include smuggling.

Rs. 40,000 crores plus another Rs. 40,000 crores through smuggling would bring it closer to Rs. 80,000 crores. This enormous amount of black money exerts its own pressure on prices.

Certain means have now been devised by which this vast amount of black money or at least some part of it can be mopped up for certain developmental activities. If the money is there and is a ground reality it is foolish to say that it is not going to be touched on moral grounds. If that money can be diverted into more productive channels, it must be possible to reduce the inflationary pressure.

There are many options to divert this money. The main option now being considered is housing activities. Middle class housing, housing for the poor and clearance of slums. Another area that is being considered is the promotion of backward areas. People can be asked to put their unaccounted money into small scale and also large industries in such areas– and not go into how they got their money for it In fact, even tax relief can be given on such investments.

GOLD DECONTROL

Another proposal is that whenever tourists and NRIs come to our country they can bring in a certain amount of gold jewellery. This is possible since Gold Control Act has been abolished now. They can be asked to pay some duty in foreign exchange for allowing this import. Thereafter they should have formally the right to sell this gold. This will bring down smuggling activity, which goes on because the actual amount of gold coming into the country is much less than the demand for it.

Local gold produced indigenously in this country is only two tonnes. Recycled gold is about 50 tonnes. The total comes to 52. Against this, the demand for gold by actual consumers is about 200 tonnes. In addition to that, because of various international factors, India's gold prices are about 55 per cent above the international price. Added to that, the fact that in Pakistan the gold policy has been liberalised. This gives a further impetus to smuggling.

The ceiling to the import of gold has been put because there should be no disturbance in what we call remittance from abroad. The 'hawala' transactions should not be encouraged at all and there must be also some kind of control on prices. If the pressure of black money in the economy can be reduced, prices will move towards greater stability.

The Government has taken several other concrete steps to reduce the prices. Firstly, take the case of sugar. The prices went up and up and just before the elections it was tremendously high. Now prices are related to production. With proper incentives, the cooperative sugar factory owners and the workers have ensured that in the coming year, the production of sugar goes up. The fall in production from 92,00,000 tonnes to 87,00,000 tonnes was responsible for the price disruption. In this financial year itself sugar production is expected to be anywhere between 105,00,000 to 110,00,000 tonnes. This itself will bring down the prices.

OTHER MEASURES

If the releases of sugar are not periodical and in proper manner, artificial scarcity for some consumers is created– and the prices go up. So the big traders have been surely told that if the release machinery does not operate properly and they deliberately hold back stocks, to artificially raise the price of sugar the Government will not hesitate to divert the open market quota of sugar to the levy market Sugar prices have stabilised now and they will go down further. The only thing we have to watch out for now is that the prices should not be depressed to such an extent that the sugarcane growers do not get an adequate price.

(Contd. on page [illegible])

Indo-Soviet Relations: New Areas of Co-operation

Mahesh Prasad

NDIA HAS HAD LONG years of friendly and emely cordial relations with the Soviet Union. A sted friend in times of need, USSR has helped ia in the early years after Independence, when re was an urgent need to build an industrial base in core sector, around iron and steel, power, oil and vy engineering. The mechanism of rupee trade helped India import bulk commodities, like de, fertiliser, non-ferrous metals and a number of chinery items. It has also helped India in stepping its exports to the USSR. The trade turnover ween the two countries has expanded very fast, ng up 12 times since 1970-71—from Rs 316 crore to 3,867 crore in 1988-89 With Perestroika and snost, the Soviet Union has thrown open the ntry to foreign investment India is setting up e hotels in the Soviet Union and would be taking seven more soon. However, the developments in Soviet Union and in Eastern Europe over the last year or so have cast doubts whether the tempo in growth of trade and investment flows could be ntained.

he process of liberalisation of the Soviet economy ough Perestroika and Glasnost has led to a great l of changes in the Soviet economy and polity. system of command management of the nomy has made way for decentralisation with the it to enterprises to negotiate trade deals directly a foreign party. A great deal of uncertainty ounds political relations in the Soviet Union too, n some of the Republics declaring themselves ependent. The net result of these developments is trade with the Soviet Union, which was being otiated at the central level with particular itutions has now to be negotiated with different ublics. The Soviet Union has switched over to d currency in its trade relations with COMECON ntries. This has led to uncertainty in regard to the tinuance of rupee trade with India. Then there been the question of exchange rate of rupee with ble. It is in this context that the Prime Minister, V.P. Singh, led a high level delegation to the Soviet on, which included Ministers of Finance, nmerce and External Affairs.

hat the two countries were quite conscious that istments would be necessary in the economic relations between the two countries becomes quite apparent from a cursory look at the MOU signed at the end of the meeting of the inter-governmental Indo-Soviet Joint Commission during Mr. V.P. Singh's visit. It is perhaps for the first time that mention is made in an official document exchanged between the two countries of structural changes currently underway in the economies and foreign trade of both India and the Soviet Union. These, it says, would require adjustments in Indo-Soviet relations. The two Co-Chairmen of the Joint Commission directed all the Working Groups to closely follow the changes in both the economies so that emerging difficulties as well as opportunities in Indo-Soviet economic relations could be evaluated and remedial actions taken. They agreed that the long-term programme of Indo-Soviet trade, economic, scientific and technical cooperation be worked out taking into account the "changes in the Soviet Union and Indian economies in the broader context of the change in global trade and financial environment." Nevertheless, Mr. V.P. Singh, during his talks with the Soviet President, Mr. Mikhail Gorbachev, was able to get the assurance that rupee trade agreement would continue for another five years.

MUTUALLY BENEFICIAL

It is recognised both in India and the Soviet Union that so far rupee trade has been mutually beneficial. The balance of trade has, however, been generally in favour of India. The major items of exports from India to USSR are tea, coffee, pepper, cardamom and other spices, mica and mica products, alumina, medicines and pharmaceutical preparations, pesticides and herbicides, a number of chemicals and chemical products, finished leather and shoe uppers. cotton clothes and readymade garments, a wide range of machinery and equipment, including automobile storage batteries, freight containers, steam boilers, diesel engines, electronic instruments, machine tools and aluminium power cables. In its efforts to expand and diversify the trade, the Indian government has added new items like non-ferrous castings and forgings, castings for Railways, abrasive goods, analysers for quality control of agricultural products, machinery and equipment for textiles, sewing and leather industries, sports shoes and razor blades

ship repairs, components for tractors, detergents and decorative plastics. The major items of imports from the USSR are crude oil, oil products, newsprint, fertilisers, sulphur, steel products, plastic chemicals, non-ferrous metals like zinc, copper, nickel, a number of machinery items like power equipment, coal mining equipment and ferrous metallurgical equipment. To these items new items have been added such as benezene, pig iron, equipment and materials for Indian Railways.

The MOU signed during Mr. V.P. Singh's visit stressed the need for fulfilling the obligations of either country under the trade plan for 1990, while at the same time taking steps to esnure future development of trade at the present rate of growth. During discussions, the Soviet side is reported to have pointed out that over the years a situation has developed whereby the Soviet Union had become an exporter of raw materials– oil, cellulose, fertilisers, paper, etc— whereas India was stepping up exports of finished products, which include computers, medicines and detergents. Such a situation, they said could not last long as the USSR was switching over to a market oriented economy. India, according to the MOU, "expressed its willingness to purchase more Soviet machinery and equipment." It, however, said, "in the immediate future the growth of Indo-Soviet trade can be achieved mainly through increased supplies of industrial raw materials and commodities from the Soviet Union," The Soviet side, on the other hand, expressed the view that the development of mutual trade in machinery and equipment should become the main basis for diversification and expansion of trade, in particular, for projects of economic cooperation in India and the USSR. The two sides recommended that the composition of goods should be significantly diversified and provisions made for exchanges in greater volume in the Agreement on Mutual Supplies of Goods for 1991-95 between the USSR and India, which is currently under negotiation.

NEW AREAS OF COOPERATION

With the liberalisation of the Soviet economy, Indo-Soviet economic relations have transcended the stage of commodity trade and collaboration between the two governments and public sector in either country. It has now reached the stage of joint ventures betwen India's private sector and Soviet enterprises. India and USSR had approved in all 36 joint ventures in the two countries till the end of April this year. More than 40 joint ventures are in different stages of negotiations between the concerned enterprises and organisations of the two countries. Another area under negotiation has been production cooperation between Soviet enterprises and the Indian firms in the private sector, under which parts of goods may be produced in one country and finished goods in the other. One problem of the joint ventures has been the repatriation of rouble profits of the Indo-Soviet joint ventures in the Soviet Union. Recognising the important role of the new forms of economic cooperation, the Co-Chairmen directed the concerned agencies of the two governments to finalise at an early date an agreement on the repatriation of the rupee profit through the rupee clearing mechanism. A draft agreement has already been handed over to the Indian side by the Soviet side. The two Co-Chairmen also decided that work for concluding an agreement for resolving financial issues related to the establishment of Indo-Soviet joint ventures in India would be initiated at an early date.

Talks between the two sides revealed that there were vast potentialities for the development of production cooperation, under which it was suggested that the two sides could undertake even the production of civilian aircraft. The Soviet side suggested selling to India aircraft technology, including IL-76 and Yak-42 planes and helicopters. Possibilities of tripartite cooperation among West Germany, the Soviet Union and India have also emerged. Under such an arrangement West Germany could provide finance and the Soviet Union the technology for joint ventures in India

New vistas of cooperation emerged during Mr. V.P. Singh's visit. These include banking and insurance. The MOU refers to India's experience in managing a mixed economy with various forms of ownership and its expertise in banking, insurance, accounting and small and medium scale industry and agreed to explore possibility of cooperation in these areas. Recognition of India's expertise in the field of banking and insurance throws open immense possibilities What form such a cooperation would take would depend upon future negotiations between the two sides.

SOFT CREDIT

Another gain of Mr. V P. Singh's visit has been th reiteration by the Soviet side that it would continue t offer credits for Soviet projects in India on soft terms Soviet credits to India have played a crucial role in th development of the core sector of the India economy, in imparting dynamism and diversificatio to the Indo-Soviet economic and commerci exchanges and in ensuring the supply of consume goods to the Soviet Union.

The MOU also took note of the hurdles faced b Indian businessmen mainly on account of vi regulations in the Soviet Union Taking note of thi the MOU says "the two sides agreed to impro facilities for busineesmen, including the grant multi-entry visas valid for one year for t representatives of established firms and enterpris of both countries, active in economic and commerc exchanges, easier availability of hotal accommodat and visas for internal travel". To facilitate eas access to trade information and to get over t problem created by decentralisation of the Sov

economy, the two sides directed that negotiations on setting up of an India Trade Centre in Moscow should be expeditiously completed and decision to set up a Soviet Trade Centre in Delhi be taken by the end of the year.

Note has also been taken in the MOU of certain other impediments to the growth of trade, particularly the movement of cargo. The concerned agencies of the two sides have been urged to elaborate a joint programme of both immediate and long-term measures to speed up the shipment of cargos from ports of one country to the other. Stress has also been laid on the regular flow of information through trade fairs, exhibitions, seminars, exchange of delegations as well as visits of individual entrepreneurs.

Table 1

India-USSR Trade

Year	Export	Import (in Rs crore)	Turnover	Trade Balance
1970-71	209.9	106.1	316 0	103 8
1975-76	416 7	309.8	726 5	106 9
1976-77	453.8	316 1	769 9	137 7
1977-78	656 9	446 4	1103.3	210 5
1978-79	411.4	470 6	883.0	59 2
1979-80	638 2	824 3	1462 5	-186 1
1980-81	1226.3	1013 7	2240 0	212 6
1981-82	1661 1	1136.9	2798.0	524 2
1982-83	1669 8	1413 2	3083.0	256.6
1983-84	1305.9	1645 6	2951 5	-339 7
1984-85	1879.6	1788.1	3667 7	91 5
1985-86	2005 7	1677 5	3683 2	328 2
1986-87	1867.2	1014 8	2882 0	852 4
1987-88	1971 5	1278 9	3250.4	692 6
1988-89	2609.0	1258 0	3867 0	1351 0

Source: Economic Survey.

RUPEE– ROUBLE

Although a lot of ground has been covered and doubts cleared about the future course of Indo-Soviet economic relations, one important issue remains to be solved and that is the rupee-rouble exchange rate. Going by the official rate of rouble against the dolla of over five roubles for a dollar, the exchange rate o 22 rupees for a rouble gives a highly inflated value fo the Soviet currency. Although this does not mak much of a difference in commercial deals, which ar evaluated in terms of dollar and then converted int rupee, it makes a difference for tourists, particularl for businessmen, as also in the repayment of roubl credit. The issue is likely to be settled at the ne meeting of the Joint Commission, to be held in Delh soon.

An assessment of the outcome of Mr. V.P. Singh' visit to the USSR would show that new areas o cooperation have emerged in the field of service particularly in banking and insurance. Th potentialities of production cooperation have bee better appreciated and procedural hurdles in th field of joint ventures sought to be removed. The visi has also resulted in a better appreciation of th developments at the national and international level by either country. The biggest gain of the visit however, is the continuation of the agreement o rupee trade for another five years. Seen in the contex of the Soviet decision to take to hard currency in it trade with COMECON countries, the gain i tremendous. It would enable India to continue to bu its requirement of crude and other essential supplie without the outgo of hard currency, which is so scarce in the country at present. This will also help the continuance of the present volume of Indian exports to the Soviet Union, for if the USSR were to buy its requirements in hard currency, it might well choose quality goods from industrialised countries This is of course good only in the short term as already there are complaints of poor quality of goods supplied by India, particularly of detergents, which is a new item in trade. In the long run, both India and Soviet Union realise that they have to be competitive to be able to maintain the tempo of growth in the trade between the two countries and hence the emphasis in the MOU on 'liberalisation' and the change in 'global trade and financial environmentr

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To Our Readers

Due to unavoidable circumstances, we are forced to raise the price of Yojana marginally. As a result, the price of single copy of Yojana will be Rs. 3/- w.e.f. 1st September, 1990. Likewise, the revised subscription rates for one year, two years and three years will be now Rs. 60/-, Rs. 108/- and Rs. 144/- respectively. However, the present subscribers will continue to get their copies on the old rates till the expiry of their subscription period.

Towards Social Transformation

A two-day meeting of the National Development Council was convened in New Delhi recently to consider the Approach to the Eighth Plan titled "Towards Social Transformation". In his inaugural address, the Prime Minister, Shri Vishwanath Pratap Singh referred to a number of issues crucial for the national economy and its development. Reproduced here are main excerpts from his address for the benefit of our readers.

WE BEGIN THE DECADE of the nineties with some strengths. The past decade has seen an acceleration in the rate of growth from 3.5 to 4.0 per cent per annum of earlier years to around 5.3 per cent. The production of foodgrains has grown satisfactorily, although our overall performance in agriculture has not been quite as good as was expected. There has also been a distinct acceleration of industrial growth. Indian industry has begun a process of modernisation and structural tranformation which has made it stronger in many ways.

SERIOUS WEAKNESSES

The economy also has very serious weaknesses which have become accentuated in recent years. The faster growth has not benefited all sections of our population equally. The benefits of growth have not been spread evenly across the regions of the country. Large areas remain where the green revolution in agriculture is a dream; where the supply of power is erratic and intermittent, and where industry still fears to go. The poor have not benefited as much as the large new middle class of the country. The income gap between the urban and rural areas has widened.

Most disturbing of all, the faster growth in GDP has been accompanied by a slowing down in the growth of employment. This is a serious problem that we simply cannot ignore, especially in view of the growing number of educated youth now entering the labour force every year. The frustration and anger of people who have spent 12 to 15 years of their lives studying, only to find that society has no use for their knowledge or skills, is spilling over into mindless violence that is threatening our national unity and breeding social tension.

The past five years have also seen a serious deterioration of our fiscal situation. Budget deficits on the revenue account have grown rapidly both at the Centre and, more recently, in the States. In 1989-90, the combined deficit of the Central and State Governments amounted to nearly 5 per cent of our Gross National Product. We are financing the deficit by borrowing from the household sector and by resorting to deficit financing. The first is adding steadily to our interest payments, while the second threatens to raise our already high rate of inflation.

A direct consequence of the fiscal imbalance is our uncomfortably large balance of payments deficit. We have closed this gap by external borrowing but as a result our foreign debt now stands at $ 63 billion.

REMOVAL OF WEAKNESSES

The Eighth Plan must chart a course which reverses these trends. It must build on the underlying strengths of the economy, which are many, but it must correct the weaknesses which have become apparent. It must, above all, equip the country to face the challenge of the nineties. The world around, is changing at an ever more rapid pace. The revolution in information technology and transport has turned it, into one giant market place.

India too must gear itself to meet these challenges. If it does not, it will be left hopelessly behind. The threat does not come only from the industrialised countries, but from a large number of developing ones, many of which are our neighbours in South East Asia. India cannot therefore afford to look only inwards. It must look both inwards and outwards at the same time.

SOCIAL TRANSFORMATION

Growth must go hand in hand with an improvement in the quality of life. In facing this challenge, we attach great importance to institutional reforms. We intend not only to increase the allocations for agriculture, rural development and employment generation, but to make sure that the benefits go to the intended beneficiaries and not to a host of intermediaries. That is why the National Front Government is committed to transferring planning

administrative and financial power to the Gram Panchayats. It has been our experience in Karnataka and West Bengal and elsewhere that the money intended for rural development gets spent better, and creates more jobs locally, when its disposition is in the hands of those who stand to benefit from the investment.

We attach equal importance to land reforms as a necessary precondition to greater agricultural productivity. It is not a coincidence that most of the areas that have not yet benefited fully from the Green Revolution are precisely those in which absentee land ownership is rife, and tenants have no security of tenure. To pave the way for continuing and effective land reforms, our government has put all land reform legislation in the Ninth Schedule of the Constitution. Taking land reforms out of the purview of the challenge in the courts will not only make it possible to resume their implementation, but at one stroke reduce the arrears of litigation that has clogged the judicical system for the past many years.

We have also set up a Commission on Land Revenue Administration which will prepare plans to update and modernise the keeping of land revenue records. I attach great importance to on-the-spot verification of these records to unearth ownership, and to setting up Land Tribunals for land redistribuiton in which the Scheduled Castes and Tribes are also represented.

NEED FOR POPULATION CONTROL

We have so far had only limited success in curtailing the growth of our population. While there has been a decline in the birth rate in the last two and a half decades, this has been matched by a decline in the death rate. That, by itself, is a welcome development. It means that our people are better fed, enjoy better health, and, therefore are living longer. But the overall result has been to keep the growth of population unchanged for the past thirty years. We must redouble our efforts to bring down the birth rate rapidly in the next decade. Experience shows that this can be done more effectively by improving the delivery of health services, particularly to pregnant and nursing mothers and infants, and by increasing women's literacy.

Seventy per cent of our people live in rural areas and their well being depends upon the growth and diversification of the agricultural sector and the expansion of economic and social infrastructure in rural areas. These areas have been sadly neglected in the past. A prosperous agriculture provides the only firm foundation for national prosperity. Yet real investment in agriculture stagnated through the decade of the eighties. It is not surprising, therefore, that agricultural growth was below the target in the Seventh Plan period and employment generation in agriculture slowed down. The rural areas also continued to lag behind in the provision of basic social and economic infrastructure.

STRESS ON RURAL DEVELOPMENT

The Approach document seeks to correct these imbalances. Our objective is to ensure that 50 per cent of the total Plan resources in the Centre and the States taken together will be allocated to agriculture, rural development and the provision of infrastructure serving rural areas. We have already made a start in this direction in the Central Budget for 1990-91. The share of the budgetary support for the Central Plan allocated to agriculture, rural development and related sectors has been increased to 49%.

We need to do more during the Plan period to ensure that adequate funds are available to meet the investment requirements of achieving rapid growth in agriculture. Heavy investments are needed in irrigation, land development, water management and conservation, and also in areas such as rural roads, storage facilities, and rural energy supply. The responsibility for much of this will fall heavily upon the States.

A major problem with agriculture performance thus far is that most of the growth has come from a very limited area where irrigation is assured. Large areas of the country, which do not have assured irrigation, or suffer from inadequate water management, have been left out of the process of rising productivity. We must expand and improve the system of irrigation and water management. We must provide the farmer with better seeds and a strong credit system.

The Central Government has already made a start in many of these areas. We have extended debt relief to farmers for loans upto Rs. 10,000 in cases other than those of wilful default. The Central Government is bearing 100% of the burden of write-off in case of loans extended by commercial banks and regional rural banks and will bear 50% of the burden in the case of co-operative banks. Taken together the Central Government is bearing two-thirds of the cost of the write-off. This was a desirable once-for-all step to remove the crippling burden of debt on innumerable small farmers, and give them a fresh start as viable productive farm units.

We have also taken steps to ensure that the farmer gets a remunerative price for his produce. We have changed the method of calculating the cost of production of agricultural crops to reflect more fully the real costs borne by the farmer. The new method is reflected in the much more remunerative prices paid for wheat in the last rabi season and in the procurement price for paddy recently announced for the coming kharif. Our long term goal must be to see that farmers maximise their incomes.

IMPETUS TO INDUSTRIAL DEVELOPMENT

Agricultural growth and modernisation by itself will give a strong impetus to industrial development by providing rising demand for industrial production.

But there are several other challenges facing us in how we manage Indian industry in the decade ahead

Indian industry has performed well in the past decade, but much more needs to be done if it is to be able to take on the challenge of the nineties and compete effectively in the global market place. Many of our factories and the equipment in them are old and obsolete. Our costs of production are too high. They are too high to be affordable by our consumers. They are also too high to be competitive in world markets. This has to change.

WHITE PAPER ON PUBLIC SECTOR

Part of the problem is that our industry has not been subjected to systematic pressures to reduce cost. In the public sector efficiency has suffered because we have been willing to tolerate high costs and inefficiency either because we are willing to bear continuing losses, or because we cover up inefficiency by raising administered prices. We must consider ways of overcoming these problems so as to ensure that the public sector function at high levels of efficiency and generate resources for future development. The Government will bring before Parliament a White Paper on the public sector which will examine ways of achieving these objectives.

In the private sector too, we have not created sufficient pressure for cost reduction. We insulated our industry from external competition, which was justifiable in the early stages of industrialisation, but continued for too long. We also insulated our industry from the pressures of domestic competition. In the name of regulation and control, ostensibly for socially useful purposes, we developed a high cost industry in which pressures to reduce cost through competition were absent. The controls bred corruption, protected existing monopolies and generated delays in decision making. This too has to change.

The Export-Import Policy announced earlier this year reflects the Government's commitment to strengthen our export capability.

Small scale and village industries have a special place in our strategy. We will spare no effort to foster their development to upgrade their technology and to promote the marketing of their products.

APPROPRIATE TECHNOLOGIES

We must also think hard about our attitude to technology. It is too easily assumed that technology is a handmaiden only of industry; that its only role in a developing country is to throw people out of work. This approach is, to my mind, an incorrect one. Today., technology is capable of transforming the lives of the biggest and the smallest among us, of very rich and the very poor. It can create millions of more jobs just as it can destroy them. We must not forget that the heavy ears of the dwarf wheat that the indian farmer grows are as much a product of technology the nuclear power plant.

We need therefore to be open to technology. That only another way of saying that we need to be open new ideas. What we must retain is the power choose. We need technology that is appropriate, b what is appropriate depends on what we need it fo

Nowhere is this more true than in the field energy. Like other developing countries India fac not one but two energy crises. Not only is the cost commercial energy likely to rise in real terms in th coming five years, but we have to meet the growin demand for non-commercial energy, a term that is euphemism for the poor man's cooking fuel Sinc our problems in this field are so different from thos of industrialised countries, it follows that we wi have to find our own solution. Science and technolog will be our invaluable, indeed our only ally.

REVIEW OF EDUCATION POLICY

We must also take a hard look at our educationa system. Education must cease to be a mere passpor to a white-collar job, a task that it is in any cas performing less and less satisfactorily. It mus enhance the capabilities, and skills of our people, t enable them to stand on their own feet. Turning thi precept into an educational strategy will not alway be easy and may require different prescriptions. W are reviewing the education policy to address thes issues. I look to our State Governments to contribut to this process.

Women make up half of our population but the are an underprivileged half. In our villages, they tak the responsibility of looking after all the subsistenc activity of the family–they sow and harvest the land they attend to the livestock, gather the fuel wood an cook the food. They also look after the children bu their rights are often ignored and sometime deliberately flouted. We are in the process of settin up a National Commission on Women to enquire int such cases and to ensure compliance with laws tha protect the rights of the women. In the Eighth Pla period we prose to take up programmes that will b targetted directly at improving their economi condition and social status.

TASKS AHEAD

There is no shortcut through which we can avio the resources problem. We have to take har decisions. We must aim not only to cut ou expenditure, but to raise more revenues. We shoul therefore re-examine every aspect of our policies t see how this can be done. We have invested over R 80,000 crores in the public sector. We must ensur that this investment generates adequate return Only than we can finance future development.

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Rural Water Supply

Amlan Home Chowdhury

Supply of drinking water in the rural areas is high on the national agenda. Since Independence, earnest efforts have been made to tackle the problem, culminating in the launching of the Technology Mission on Drinking Water and Related Water Management. The main objective was to ensure at least one source of potable water in all the problem villages by the end of the VII Plan. A close look at the progress made and problems encountered.

EVER SINCE THE attainment of Independence, supply of potable water to the millions of rural people in the country has been a major challenge to the Centre, the State governments and the Planners.

Though efforts were on since 1952 to solve the drinking water scarcity in the vast rural areas, it continued as a problem since only a fraction of the total rural masses could derive the benefits of water supply schemes. Till 1986, about 65 per cent of the total villages in the country suffered from acute drinking water problems. There are about 6 lakh villages in India. Of this, in about 20 per cent villages, the problem of biological contamination of drinking water posed a grave problem, while in 10 per cent of villages, the main trouble was chemical contamination of the sources of drinking water. The people there were forced to use contaminated and unhygienic water for drinking purposes. Even the traditional sources of water like wells, ponds, springs and rivers were as far as five to eight miles away. The villagers had to trek a long way to fetch potable water.

TECHNOLOGY MISSION

The Technology Mission on Drinking Water and Related Water Management launched in 1986, succeeded in solving the problem of drinking water in a large number of villages. The Mission, in fact, was a great leap forward in the area of ground water management and solving the problem of potable water in the rural, tribal and desert areas. Between 1987-89, the Mission covered about 46 per cent of the problem villages. Water supply Programmes are implemented in all states through the Minimum Needs Programme. The Technology Mission covers the whole of India. It also envisages implementation of the Accelerated Rural Water Supply Programme (ARWSP) of the Central Government under which water contamination, both chemical and biological, would be removed and fresh water supplied. It would also deal with specific problems of water management like salinity and brackishness, iron, fluoride and bacteriological contamination. Under an integrated and inter-disciplinary approach, the drinking water problem in villages, hilly areas and desert areas is proposed to be solved in a phased manner. It also envisages augmentation and conservation of water resources. During the Seventh Five Year Plan, about 60-pilot projects were taken up for implementation all over India.

Though the problem of drinking water scarcity happens to be a country-wide phenomenon, the worst-hit states are: Rajasthan, Bihar, Madhya Pradesh, Orissa, West Bengal, Gujarat, Andhra Pradesh and Maharashtra. In the coastal villages of Kerala, Tamil Nadu, Konkan, Goa and Orissa, the Mission greatly helped in the removal of salinity in water and achieved about 88 per cent of the target. Moves are now on to solve the problem of drinking water in the remote tribal villages of Ranchi, Santhal Parganas, Singhbhum, Chaibasa and Hazaribagh (Bihar), Bastar, Jhabua and other areas of Chhattisgarh region (Madhya Pradesh) Purulia and Birbhum (West Bengal). In such areas, the sources of drinking water were created within the villages. In the problem villages, the Mission identified the water sources and utilised appropriate technology to ensure that the identified sources of water remain adequate round the year to provide drinking water to the villagers. Besides monitoring the quality of water and identifying the problems of water contamination, application of scientific methods to ensure supply of acceptable quality of potable water to millions of rural people is also envisaged. To sustain the quantity and quality of water on a permanent basis, several measures have been taken to ensure ecological balance.

During the Seventh Five Year Plan, Rs. 75 crores were earmarked for the scheme which aimed at arranging the source of drinking water in all those villages where the sources of drinking water were located two to five kms away.

(Contd. on page 29)

Import of Technology and In-House R&D

M.K. Ghosal

The author welcomes the constitution of the Consultative Group on Technology and hopes this body will strengthen Lab to plant linkages. Technology import policy requires proper integration with indigenous R&D effort as, the author feels, the choice is not one or the other, but dovetailing of both.

THE PROCESS OF technological up-gradation and modernisation of Indian industry has been supported mainly by the inducation of foreign technologies through import and collaboration channels. The large number of foreign collaboration approvals, well over 13000 during the last 4 decades, bear this out. Only marginal contribution has been forthcoming from indigenous technologies because of a weak R&D base which is the cumulative effect of limited resource availability and low priority to R&D expenditure. The captive home market discouraged competition and in the absence of competition among industrial firms there was hardly any incentive for them to achieve technological break-through. At present the country has a chain of 300 national laboratories, 1015 In-House R&D centres for industries recognised by Government and 160 Universities which have been undertaking research in diverse fields, including industry. Gradually, as a result of liberalisation and emergence of competitive business environment, it is being realised that it is very important to import up-to-date technologies to keep pace with global advances as to strengthen our indigenous capabilities for technology absorption and introduction of innovative modifications in imported technologies to suit our specific needs. There is much to learn from the Japanese way of acquiring the latest technology from abroad, improving upon it and finally recasting it as a leading state-of-the art Japanese technology.

FICCI had recently conducted a study on "Import of Technology and In-House R&D of Indian Industry" covering 161 sample companies and using the three year timeframe 1984-87. For this purpose, detailed information was collected through questionnaire on different aspects relating to import of technology through foreign collaborations, In-House R&D activities and utilisation of research facilities of national laboratories and other research institutions. The sample companies covered a wide range of products with nearly one-fourth companies manufacturing chemicals while other major product lines included industrial machinery, electrical equipment, metallurgy and tele-communications. Some of the important findings are as follows—

(a) 70 per cent of the sample companies sought technology from abroad, of which almost 80 per cent also simultaneously undertook their own and 20 per cent did not incur any expenditure on R&D. The balance 30 per cent of total sample companies did not import any technology and undertook their own R&D for technology up-gradation and modernisation of their units

(b) USA accounted for one-third of the total collaboration agreements followed by UK, FRG and Japan.

(c) 60 per cent of collaboration were for imported technologies mainly in the fields of chemicals, industrial machinery, electrical equipment, metallurgy and telecommunications.

(d) Most of the companies chose a specific foreign collaborator because the technology available with him was the latest and the training facilities were available alongwith the technology.

WHY FOREIGN TECHNOLOGY

Most of the companies sought technology from abroad either because it was not indigenously

available or if available it was not up-to-date. A few companies felt that indigenous technology could not give performance guarantee or it was not commercialised, or if, available, it was costlier.

One third of the total number of companies purchased over 80 per cent of the machinery installed from domestic sources. Only 1/5th of the total sample companies did not purchase any machinery from domestic source.

Forty per cent of the total sample companies employed foreign technicians, the other 40% did not. The remaining 20% of the companies did not respond.

One fourth of the total sample companies felt that Government regulations had come in the way of obtaining latest technologies.

Over 85% of the total sample companies were undertaking their own R&D. The food processing, chemical manufacturing industrial machinery and electrical equipment manufacturing companies together accounted for about 70% of the total R&D expenditure. The percentage share of R&D expenditure of sample companies to their sales turnover was 0.7% during 1986-87. The R&D of most of the companies was directed towards product development, process development, adaptation of imported technology to local conditions and new innovations.

One-third of the sample companies which responded availed of research that had been undertaken by the various laboratories of CSIR and other National Research Institutes. Nearly One-fourth of the total companies who utilised the research facilities indicated that they were very satisfied with their experiences. However, another one-fourth of the companies did not find such inter-action to be fruitful for various reasons.

Only 1/3rd of the sample companies which responded had availed of the technology up-gradation scheme which became effective since 13th August, 1987. Majority of the companies felt that the scope of the scheme, which is, at present applicable only for existing/new production units in selected capital goods sector industries should be expanded to cover a wider-spectrum of industries.

PROBLEMS AND PROSPECTS

Our industrial concerns lag behind their foreign counter-parts in R&D expenditure both in absolute terms and as percentage of sales turn-over. The sample companies in FICCI study spent negligible 0.7 per cent of sales turn-over on R&D as against 4-7 per cent spent by large corporations in Japan and USA. In 1987 Japanese total research expenses on science and technology amounted to US$ 68 billion and in 1988 USA spent about $ 140 billion on R&D. The gap in the area of science and technology between India and the developed world is also reflected in the percentage share of R&D expenditure to GNP being as low as 1.1 per cent in India as against 2.8 per cent in USA, 2.3 per cent in France, 2.9 per cent in Japan, 2.8 per cent in FRG and 3.8 per cent in USSR. India's per capita R&D expenditure is only US$ 2.78 while in most of the developed countries it varies between US$ 100 and US$ 400.

Technology import policy requires to be properly integrated with R&D at home. The study has advocated further liberalisation of Government rules and regulations for import of sophisticated technologies, allowing negotiating parties to settle terms of royalty payment, additional incentives and funds for R&D, additional resource generation to the extent of 1 per cent on the turn-over by industry for undertaking R&D, and measures to improve economic environment for industrial development

The study has made out a strong case for intensifying R&D activities by our industrial houses and for strengthening the existing indsutry-academia linkages so as to effectively utilise the commercial potential of new scientific innovations. The Consultative Group on Technology set up jointly by FICCI and CSIR appears to be a positive step in that direction.

Finally, the guidance and direction for R&D has to come from the official policy on the development of science an technology in the context of the future pattern of industrialisation with focus on small scale industrial units, village level agro-based industries and labour intensive handicrafts. According to the 35 Point Action Plan of the Government, the science and technology programme will be reviewed to provide emphasis on the need of the rural society. In any case, indigenous R&D needs to be encouraged along with import of required technology from abroad. The obvious choice is not one of substitution but of purposeful dovetailing and tapping both the sources of technology for accelerated development of the economy. □

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Towards Self Sufficiency in Edible Oils

Vishwa Nath Gupta

EDIBLE OIL IS AN essential commodity. It is used in the form of raw oil, refined oil and Vanaspati constituting .15 to 20 per cent of the consumer's mothly budget.

The per capita consumption of edible oils including Vanaspati has more than doubled during 1955-56 to 1986-87 as is evident from Table I.

Table I

Per capita consumption of edible oils and Vanaspati (In Kgs)

Year	*Edible Oils*	*Vanaspati*	*Total*
1955-56	2 5	0 7	3 2
1960-61	3 2	0 8	4 0
1964-65	3 6	0 8	4 4
1970-71	3 5	1 0	4 5
1975-76	3 5	0.8	4.3
1980-81	3 8	1 2	5 0
1982-83	4 5	1 3	5 8
1985-86	5.0	1 3	6.3
1986-87	5 9	1 2	7.1

Source: The oils and oilseeds Journal

The per capita availability of edible oils in India is between 6.5 to 6.7 kgs per annum which is much below the world average of 11 kg.

IMPORT OF EDIBLE OILS

The total availability of edible oils in the country is approx. 33-34 lakh tonnes, whereas the total consumption comes to about 45-46 lakh tonnes. Therefore, we have to import about 12-13 lakh tonnes every year. Table II indicates the figures of imported oils in recent years.

Table II

(In lakh tonnes)

Year	*Indigenous production*	*Import of oils*
1980-81	25 58	10 74
1981-82	34 07	9.95
1982-83	28 76	11 50
1983-84	35.81	16.34
1984-85	33 00	13.68
1985-86	35 00	12.00
1986-87	35 00	16 00
Average	32 5	13.00

Source: Vegetable Oil Information Centre

TECHNOLOGY MISSION

Import of edible oils involves foreign exchange which is scarce. The Government has been concerned over the slow progress in the production of oilseeds in the country. During the last five year it resorted to large scale import of edible oils to the tune of Rs. 4700 crores. Next to mineral oils, edible oils have been the single largest item of import despite the country having as much as 210 lakh hectares land under oilseeds crop which is next to US having 290 lakh hectares land for the purpose. Today the total consumption of edible oils in the country is about 45-46 lakh tonnes, but it is likely to increase to 68 lakh tonnes by the year 2000 AD. Keeping this in mind, edible oils and oilseeds production had been given priority. With a view to achieving this objective and production target of 180 lakh tonnes by 1990, Government set up a Technology Mission on Oilseeds headed by Dr. P.V. Shenoy. The main purpose of the Mission was to help increase domestic production of oilseeds and reduce the import bill. The activities of this Mission officially started from April, 1986.

Although the Mission has achieved a little success in reducing the import bill by around Rs. 500 crores, it has not achieved full success. Table III below shows the position of production of oilseeds and import of edible oils prior to and after the setting up of the Mission.

Table III

Year	*Production of oilseeds (in lakh tonnes)*	*Import fo edible oils (in lakh tonnes)*
Before the setting up of OTM		
1983-84	126 9	16.3
1984-85	129 5	13.7
1985-86	108.3	11.8
After setting up of OTM		
1986-87	114.5	15.0
1987-88	123.8	18.9
1988-89	178 9	11.08
1989-90	169 0	3.70

Source: Annual report of OTM-1988-89 and compilation

From the above table, it may be observed that inspite of considerable increase in production of oilseeds during the year 1988-89, a large quantity of

edible oils (11.66 lakh tonnes) had to be imported. In the year 1989-90 although the import was less, but side by side the production of oilseeds also came down as a result of which the consumer had to reduce the consumption unwillingly. This fact is duly supported by the statement of the Prime Minister made recently (in July, 1990) urging people to reduce the consumption of edible oils to 50 per cent.

THE ONLY WAY

The oilseeds productivity is quite low, about half to one third of the world average. The average yield of palm oil in Malayasia is four tonnes per hectare. as against 200 kg. of groundnut oil in India. According to Mr. Mirdha oil Palm is one oil bearing material which seems to provide an answer to the chronic shortage of edible oils in the country.

In addition to Andaman and Nicober islands and Kerala, around 6 lakh hectares of land along the coastal belt of Andhra Pradesh, Tamil Nadu, Orissa have been identified as suitable for oil palm cultivation. A beginning has been made for plantation of oil palm and processing thereof through two public sector organisations such as Oil Palm India in Kerala and Andaman and Nicobar Islands and Forest Development Corporation. It is hoped that it should not be difficult to achieve a yield of atleast 3 tonnes of palm oil per hectare.

SUGGESTIONS

(i) The total production of groundnut and rapeseed cake is about 16 and 17 lakh tonnes respectively. All efforts should be made to take the oil out of these two cakes which would give about 8% oil by solvent extraction. method and encouragement should be given to use these solvent oil cakes for cattle feed. This in itself would give an extra 2.5 lakh tonnes of oil.

(ii) It has been observed that about 11.70 lakh tonnes of cottonseed is being used for other purposes. Of this, half the quantity is of short staple cotton and has low oil content of about 12-13% and atleast half the quantity of long staple cotton having about 18-19% oil content. All this is used for cattlefeed. The Government by educating the farmers should see that this quantity of seed is not used for cattlefeed. At present most of the oil from the cottonseed is extracted by means of expellors and without linting the seed. In this way 5-6% of the oil is lost. If encouragement is given for the linting and the oil is extracted by solvent extraction method, it can give an extra 1.5 lakh tonnes of oil.

(iii) The groundnut crop is a traditional and remunerative crop for the farmers of Gujarat. Irrigation facilities should be provided by boring tubewells as persistent drought conditions prevail there. The farmers can be given soft loans to buy seed, fertilizer etc With these facilities, the per hectare yield of groundnut in Gujarat can be easily doubled

(iv) The mustard oil family consisting of rapesed, mustard seed and toria is a crop which requires least irrigation and the yield thereof can be increased by adopting the following method:

The agricultural universities should be entrusted to find out a high yielding variety of seed. A few years back Ludhiana Agricultural University haddeveloped an improved high yielding variety of toria which became known as 'Gobhi Sarson Seed'. It was distributed to the farmers who by using the same were able to get an yield of 1300-1400 kg. per hectare against the previous yield of only 800 kg per hectare

(v) Sunflower is an ideal crop to meet the edible oil gap. Sunflower has become a very popular commercial crop especially among marginal farmers. This can be ascertained from the fact that its production has increased nearly eight fold in just five years from a mere 66,000 tonnes in 1980-81 to nearly 5 lakh tonnes in 1985-86 The yield of this crop is double that of groundnut and it needs small quantity of seed for sowing. As it matures in 80 to 110 days, three crops can easily be taken in a year Experts are of the opinion that if efforts are made, the production of sunflower can go upto 30 lakh tonnes and it can give 12 lakh tonnes of edible oil. It can very well help the country to meet the edible oil gap.

(vi) The soyabean crop should not be encouraged much because as a matter of fact it is staple food of the future, not oil seed.

(vii) The guarantee prices or the support prices declared by the Government for different seeds should be maintained and the Government should be prepared to buy the seeds at those prices, if the same remain unsold.

Countries like Belgium, Denmark, France, Italy, Netherlands, Ireland, Spain, U.K., West Germany forming the EEC, by announcing guarantee price return to the farmers for the repeseed and. by developing better quality seed, have been able to increase the production of rapessed crop to 51 lakh tonnes in 1986-87 from 28.9 lakh tonnes in 1985-86.

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Project Management: Indian Experience

Prof. M. Sakthivel Murugan and Dr. N.P. Srinivasan

Delay in the implementation of projects results in time and cost over run and consequent escalation of investment. In this article, the authors analyse some of the studies made in this direction and stress the need for proper project planning, implementation and monitoring of the public as well as private projects.

PROJECTS ARE THE vital means of development and economic uplift. They generate additional capital and ensure flow of goods and services to the nation. In India, large sums have been and are being spent on various projects for providing infrastructural facilities and for meeting developmental needs. In the public sector alone, over Rs. 35,000 crores have been invested in more than 200 projects. Unfortunately, there have been considerable time and cost overrun in most of these projects.

In this article, an attempt is made for the systematic analysis of the Indian experience in project management studies of public and private sectors and to form a comparative view. The public sector experience is particularly relevant for it is based on some of the most complex and massive projects India has undertaken. The main problem is cost and time overrun. Studies show that in a large public sector project the time overrun is of the order of about three years on a scheduled project duration of about 3.7 years. Cost overrun is about 140% of the projected cost. The private sector study indicates that the cost overrun is 123% of the projected cost and time over-run, 10 months. Production losses due to delay in completion is 4 times the cost overrun. Delay in implementing the projects is one of the major factors today hindering the country's economic development.

LIFE CYCLE

Project management practice is best studied under the context of its life cycle. A possible project life cycle is outlined here as under. Projects have to pass through the following 4 phases: Project planning, Project implementing, Project monitoring and Project evaluation.

Project Planning is a cyclic process. It compises a series of steps to be taken to convert an idea into a feasible plan of action. It aims at a systematic analysis of project potential with the ultimate objective of arriving at an investment decision. In this process, it makes an objective assessment from all possible angles starting from identification of investment options upto its appraisal stage. It includes project identification, technical analysis, financial analysis and project appraisal.

In the context of project management cycle, implementation involves allocation of tasks to groups within the project organisation. This stage has to be given utmost importance to derive the intended objectives. Deficiencies in implementation are also found due to inadequate planning of projects at the initial stage.

The purpose of any successful project implementation is to ensure that the project activities are completed within the schedule and the budgeted provisions, leading to desired quantum of benefits flowing therefrom. The project implementation implies initiating the project, specifying and scheduling the work, clarifying authority responsibility relationship, obtaining resources, establishing control system, directing and controlling and finally terminating the project.

Project Monitoring enables a continuing critique of the project implementation. It involves watching the progress, resources and performance schedules during the execution of the project and identifying lagging areas requiring timely attention and action. It also facilitates imparting such constructive suggestions like rescheduling the project, rebudgeting or reassessing the staff.

Project evaluation is designed to examine the worth, significance, degree or condition of any given project. The primary purpose of evaluation is to provide objective, systematic and comprehensive evidence on the degree to which the project achieves its intended objectives plus the degree to which it produces other unanticipated consequences. [illegible]

evaluation of the project management cycle can be described as an integrated objective assessment of progress and its overall impact.

INDIAN EXPERIENCE

The major problem in project management is over run in time and cost. The causes are many and their impact on project profitability is highly adverse. Based on the findings of several studies on the subject, an outline of the nature and magnitude of time and cost overruns in furnished below.

A study by Tripathy (1982) reveals that only 5 of the 49 public sector projects each costing over Rs. 20 crore and expected to be commissioned during 1974-79, were completed in time. Only two were completed within the project cost. The average time delay was around three years and the average cost over run around 100% The time and cost over runs for these 49 projects are shown in Table No. 1.

Table 1

Time and Cost over runs

Time Over run	*No. of Projects*	*Cost Over run*	*No. of Projects*
On Schedule	5	No cost escalation	2
upto 2 years	13	Upto 50%	9
2 to 3 year	10	50 - 100%	15
3 to 5 year	13	100 - 200%	17
More than 5 years	8	More than 200%	6

A study by Kapur (1983) provides data on specific projects in the power, steel, petroleum, irrigation and mining sectors. These sectors are capital intensive and account for over 40 per cent of the total plan outlay in the public sector. The date are given in Table 2. Kapur's data shows that average time over run on selected large projects in the core sector was nearly 3.5 years. The average cost over run per month of delay was Rs. 3.1 crore. The average production loss per month of delay was Rs. 15.6 crore, i.e nearly Rs. 60 lakh per day. The production loss per unit time of delay was five times the cost over run.

Table-2

Time and Cost over runs on some specific projects

(Rs. in crore)

Name of project	*Cost over run*	*Time over run (months)*	*Estimated Production Loss*	*Cost over run p m*	*Production loss p.m*
Borkaro Steel	310 32	72	3018 75	4 31	41.92
Gujarat Refinery	27 99	12	[illegible]	[illegible]	36 50
Bajra Hydel	71 71	60	[illegible]	1 20	2.53
Panipat Fertilizer	4 50	15	47 43	2 30	3 16
Obra Thermal Power	216 50	27	217 48	8 02	8 05
Bailadila Iron	31.20	60	76 50	0 52	1.28
Average		41		3 11	15 57

A study by Kharbanda (1983) provides data on cost and time over run in the case of 15 fertilizer projects. On a average the actual completion time was about 7 years, 1.9 times the actual scheduled duration of 3.7 years and actual costs were 2.4 times the planned costs. The cost over run per month of delay was Rs. 2.1 crore.

A study was undertaken by Industrial Development Bank of India (IDBI) to assess the impact of the cost and time over runs on the projects assisted by it and to identify the factors contributing to them. The study was based on the data in respect of 289 projects in the private sector assisted during 1964-65 to 1979-80. The study revealed that nearly 76 per cent of the assisted projects had cost over run around 23 per cent of the initial project costs. It was much higher at 30% for porjects where cost over runs had occured. The average time over run was 10 months. The trends in cost over runs and delay in project completion can be seen from Table 4 & 5.

Table 3

Trends in cost over run

Years of Sanction	*Percentages Average Cost Over run*	*Average increase in Price Index for investment/goods*
1964-65 to 1969-70	19 7	5 3
1970-71 to 1974-75	30 2	12 4
1975-76 to 1979-80	20 7	7 5

Table 4

Frequency distribution of delay in implementation

Delay in Completion	*No of Projects*	*Percentage Distribution*
37 and more	14	5 2
25 to 36	33	12 3
13 to 24	65	24 2
7 to 12	67	24 9
1 to 6	51	19 0
o	13	4 8
1 and less	26	9 7
Not available	20	–
Not available	289	100 00

The survey conducted by Rathi and Tripathy (1986) on project management practice by public and private sectors reveals that the cost over run of public sector projects varies from 8% to 56% and time over run is about 11.5% to 80%. As regards the private sector projects, the cost over run ranges between 2.8% and 44.4% and the time over run between 33.3% to 44%.

CAUSES

Based on the aforesaid studies and surveys – the causes of cost and time over run in public and private sector projects can be summarised.

(1) Project formulation stage:
Lack of adequate coverage of cost pertaining to infrastructural facilities.
Capital cost estimate not fully based on required basic engineering work
Time taken to link up foreign process licensors not considered

(2) Project implementation stage:
- Land acquisition: Action on land acquisition initiated after project clearance. Litigation leads to further delay.
- Power : Severe power cuts in many areas affect power availability.
- Transportation: There are severe limitations of wagon availability due to lack of priorities for movement of project equipment and materials.
  Port limitation: Due to heavy congestion, undue delay in unloading project materials.

(3) Capabilities and infrastructural availabilities: There are serious constraints owing to inadequate development of detailed engineering capabilities, equipment manufacturing capabilities, construction capabilities and raw material supply capabilities.

(4) System support inadequacy:
- Project management systems are yet to be fully developed except in a handful of project organisations.
- Tendering and procurement: Procedures prescribed for tendering and procurement of project items are totally inadequate and result in increased risk of substandard work.

(5) Environmental constraints : There inordinate delay in project clearance from the point of environmental impact assessment. Although this is important, there need to perform such assessments expeditiously in a way that does not impair the operational viability of the project itself.

RECOMMENDATIONS

To improve the project management capabilities the following suggestions are made:

* Better project management capabilities at all states that provides the greatest scope for improvement.
* More scientific pre-investment investigative studies need to be undertaken for large projects.
* Capital cost estimation needs to be realistic. Special data bank and libraries are to be set up giving time and cost estimates for various activities in completed projects in major sectors.
* A definite time schedule should be drawn up for the pre-investment stage of the project. This stage is subject to inordinate delay. Agencies involved in issuing permits, clearance for foreign exchange, import licence and custom clearance should be involved in appraisal to minimise the risk of delay in obtaining clearances.
  The choice of organisational structure should be in accordance with the nature of the project, its size, complexities, type of process and technologies involved. Centralised policy formulation with decentralised implementation appears to be ideal for mega and medium projects.
* Computer based net work analysis methods are to be used for project scheduling and monitoring. PERT/CPM techniques and their extensions should be adopted as a regular feature for time cost and resource allocation analysis. More use should made of S-curves, Line of Balance (LOB) and other techniques for monitoring and reviews. Multi level net work systems should be adopted for integrated project scheduling and monitoring at various levels. It would be advisable to introduce dual scheduling system for projects on the lines of Compressed Activity Time Schedule (CATS) and Realistic Activity Time Schedule (RATS). A project management information system should be introduced to enable effective project monitoring and control at various levels.
* The most neglected area is the development of human resources for project management. There is no special institution in this country offering special programmes in this field. This matter should be looked into.

An analysis on project management by public and private sector studies in India highlights the major shortcomings that have resulted in time and cost over runs. However, there has been evidence of determined and successful project management. An effort has been made in this article to justify the need for proper project planning, implementation and monitoring in the private as well as public sector projects in India.

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Leasing Industry– The Emerging Scenario

Madhab Nayak

The leasing industry plays a significant role in economic development. Several factors have made leasing finance more popular, compared to finance available from other sources. Here, in this article, the author traces the progress made by it, over the years and suggests remedial measures for the problems faced by the industry. The author also lays emphasis on development of efficient managerial manpower for the effective functioning of leasing companies.

THE DEVELOPING ECONOMIES have been expanding at a faster rate than what suppliers of funds could sustain. The situation still continues and the gap between fresh demand and the source of fund to fill up the requirement has increased. In this context, leasing companies have filled the gap by providing rental capital equipment. The leasing industry has, therefore, a key role to play in the economic development of the country.

The Equipment Leasing Association defines leasing as "a contract between a lessor and the lessee for the hire of a specific asset selected from a manufacture or vender of such asset by the lessee. The lessor retains the ownership of the asset. The lessee has possession and use of the asset on payment of specified rentals over a period of time." In other words, leasing is a legally enforceable contractual obligation between two parties, the lessee and lessor. The contract relates to a perticular plant or machinery needed by the lessee.

Today, the world over, leasing accounts for a considerable portion of all fixed capital formation in the industrial sector and has established itself as a reliable source of finance investing in plant, equipment and machinery. The leasing industry has developed in almost all the major countries of the world. The leasing companies in the Western countries are undergoing quantitative change– from financing purchase of light industrial equipment to high value capital intensive transport infrastructure, such as, financing of aircraft.

The report, "Survey of Industry activity 1986", published by the American Association of Equipment lessors indicates that the leasing finance in U.S.A. amounts to $ 85 billion representing 28% of all business investments and represents half of the world-wide leasing transaction. In U.K. it is about 16%. In the case of Europiean countries, covered by *Leaseurupe* the amount went up from ECU 6.9 billion in 1978 to ECU 44.1 billion in 1987, a 40% increase from the 1986 figure of ECU 31 billion. A cursory glance at some of the other countries give a similar trend (See the following Table).

(Rs. in billion)

Country	1977	1987
Japan	Yen 813	Yen 4, 757
Korea	W 22	W 1, 986
Australia	A$ 0.8	A$ 6.8
India (Rs. in crores)	10 (in 1982)	approx. 950 (in 1989)

The leasing industry appears to have occupied pride of place as an important provider of finance for capital equipment to industrialists, consumers, traders and other segments of the population, which has come to depend increasingly upon leased equipment and finance for running their business.

LEASING INDUSTRY IN INDIA

In India, due to rationing of scarce capital resources, leasing finance will be encouraged for rapid industrial growth. Leasing facilitates the companies to grow faster, as it provides long-term use of an asset without owning it.

The leasing Industry in India dates back to 1973, when the first leasing company was launched in Madras. The Indian stock Exchanges witnessed a capital boom during 1983 to 1986 and about 250 leasing companies were floated to finance the industrial as well as consumer sector. As of now, there are more than 350 leasing companies with a business investment of nearly Rs. 950/- crores. The 1982 figure was 10 crores. The leasing industry is consolidating its position as a dependable source of finance to entrepreneurs, traders and others.

The leasing industry in India got a boost by the entry of fully owned subsidiaries of some nationalised banks and organised sector development institutions.

They not only provided competition to the private sector companies but also gave a greater credibility to the industry.

In 1983, Industrial Credit and Investment Corporation of India (ICICI) followed by Industrial Reconstruction Corporation of India (IRCI) entered in leasing business. Later, State level institutions came forward to provide leasing finance to the industrial sector. The State Bank of India and Canara Bank also entered the field. Today, many of the manufacturing units of capital equipment have started selling their products on the basis of lease finance to increase their sales.

It has been estimated on a conservative basis that the demand for lease finance in India is around Rs. 2,000/- crores per annum. At present, the existing leasing companies have at their disposal no more than Rs. 1000 crores. Hence, there is a yawning gap between the avilability of lease finance and the demand for it and there is every reason to believe that lease finance would be increasingly sought.

POPULARITY

There are several factors which have made leasing finance more popular, compared to finance available from other sources. These include:

Deletion of section 115 J of the Income-Tax Act, 1961 will ensure that leasing companies get full tax shelter in respect of depreciation which they were entitled to under the previous Income-Tax Law.

The withdrawal of the investment allowance and investment deposit scheme under section 32-AB would brighten the prospect of leasing industry indirectly.

Leasing companies provide 100 per cent of the cost of asset.

The highly geared companies whose debt-equity ratio is around 2:1 may find leasing a good source of finance.

The rental pattern of leases can be tailored to accommodate the cash flow situation of the lessee.

It may be possible for the lessee to avoid some of the risks associated with ownership. The lessor will charge a lease rate intended to provide a specified return on the required net investment. The net investment is equal to the cost of the asset minus the expected salvage value of the asset at the end of the lease. If the actual salvage value is less than originally expected, the lessor bears the loss.

The formalities to be fulfilled in terms of documentation, collateral etc. for obtaining equipment through lease finance are too less compared to what a borrower has to go through to obtain loan from financial institutions and banks.

The lessor who provides either the finance to purchase or equipment is concerned only with the rent paid for the use of the equipment. Therefore the lessor is not in a position to interfere in the management of the company But, it has been observed that the financial institutions who provide finance to the borrowers, at times, influence the forking of the companies and force certain decisions on the borrowers.

The decision regarding financing a company is one of the complex problems in a developing economy as the enterprises are operating in an economic world where scarcity is the inescapable factor of everyday life. The source of financing has many facets and leasing is one among them to meet the increasing demand of the industrial sector. As mode of financing is crucial for an enterprise, due care has to be taken before a final decision is taken. Otherwise, it may upset the economic stability of the company in the long run.

PROBLEMS

One of the problems faced by the leasing industry is shortage of funds for the operation of business. Since their own resource is limited, they have to depend on funds from the banks and financial institutions or mobilised public deposit. In this regard, RBI has taken an unfaveourable stand on the recommednations of Dahotra committee, towards financing co-operative banks to the leasing companies. In other words, co-operative banks are not allowed to finance leasing companies on the plea that co-operative banks can only finance the small scale industries.

The leasing companies should be allowed to tie-up with foreign leasing companies to enable them to acquire sufficient foreign exchange to import scientific euqipment and machinery for the modernisation of the industrial sector which will ultimately, improve productivity. The 46th Amendment to the Constitution of India has empowered the States to levy 4% sales tax on the delivery of goods on any system of payment by instalment. This is not in the interest of the lessee because it amounts to double taxation as the goods are already subject to sales tax when purchased by the lessor.

The accounting guidelines suggested by the Institute of Chartered Accountants are to be followed by all leasing companies with effect from 1st April, 1989, in spite of strong opposition from the leasing companies and its associations. This development is said to be premature and not suited at this stage of the growth of leasing industry

Generally, under the Companies Act [illegible] companies have to follow accrual system [illegible]

accounting in accordance with the recently amended Section 209 of the Companies Act 1956. Under section 209, the companies are required to treat the unrealised/ unrealisable lease rentals as income, even though there may be little chance of recovery.

Last but not the least, entry of nationalised banks into lease financing has placed the leasing companies in a tight spot as the banks pay at 12 per cent on public deposits. The nationalised banks can borrow from the international market at a much lower rate of interest of about 7 per cent. Whereas the private leasing companies have to either borrow from bank at 16 per cent or from the public by issuing debentures at 14 per cent. So it is high time for the Government to take some rational steps in this regard and allow the private leasing companies to borrow from the international capital market. Leasing finance has been a welcome development as it widened and deepened the capital market. In spite of the numerous problems faced by the leasing industry there is bright scope for this sector in the coming years. Shortage of resources to run business and lack of adequate managerial manpower will, however, have an adverse impact on the long-term viability of new entrants to this field. Hence, there is urgent need for remedial measures.

The future of the leasing companies is predicted on the basis of mushroom growth of the companies in terms of number as well as volume of transaction. The prediction may not be true. It is high time to go in for thorough research on lease financing. Unfortunately, no dependable research has been done so far due to non-availability of data or lack of initiative among reserachers/professionals to do so.

Financing decision is influenced by two categories of factors, internal and external factors. It involves a complicated analysis and forecasting of cash flows from the lease transactions which needs expertise and sophistication in handling the type of business. Unfortunately, the leasing sector is not properly equipped with efficient managerial manpower Therefore, there is need for developing efficient managerial manpower for the effective functioning of leasing companies. □

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(Contd. from page 5)

In the case of cement, there were some difficulties about wagon movement and production. These were responsible for the price rise Of course, in different regions, the picture is somewhat different, because the movement of wagons sometimes brings up or brings down prices. This is being sorted out with the railways.

There are a number of reasons why the price of tea has started moving up. For instance, prior to the new Government coming, an agreement was signed with Soviet Russia that the best quality tea will be exported to them. Recently an agreement has been signed with them that these exports will be restricted for sometime. We will stagger it till the end of June, when the fresh crop of tea comes in. This will bring down the prices. In addition to this, an incentive that has been abolished for all other industries has been given to the tea industry— the incentive deposit account scheme. This scheme has been abolished throughout the country for all other industries. This, too will give an advantage which will help to bring down prices.

Edible oils is the most difficult area right now. For various factors, the oilseed production had definitely gone down over the last one year or so. Orders have been issued to import 2,00,000 tonnes of edible oils. The main problem, however, is the decline in production. Something will have to be done there.

Finally, salt prices also went up steeply. Initially it was thought that this was because of iodisation. But this was found not quite true later. After the subsidisation factor, the actual increase in cost-because of iodisation-comes to only 2 or 3 paise per kg. A cost that we can easily afford in our fight against goitre. The other factor was the railways again, who were insisting that full rakes of salt be sent– not just a few wagons. As a result of that, the salt producers had to wait for a long time to fill all the wagons, thus resulting in artificial shortages in areas where the salt took time to reach. This sent prices shooting up. The issue has now been sorted out with the railways, who have agreed that they will not insist on entire rakes being sent together. This will stop artificial shortages and bring down the prices.

DOING THE BEST

As regards the fiscal measures, the gift tax has been changed from being donor-based to donee-based to curb ostentatious expenditure in marriages etc. The Customs Act and the Enforcement machinery are being strengthened to attack smuggling and seize as much gold as possible. As much black money as possible will be diverted into developmental areas like housing, development of backward regions etc

Thus it can be seen that what we are trying to do is to control the entire economy in such a manner that the deficit will contract, liquidity will be mopped up, the black money pressure will diminish, and – at the same time non-productive government expenditure will be controlled in such a manner that the inflationary impact on the economy will diminish This is, admittedly, a difficult task but we have addressed ourselves to it, ever since we faced a disaster scenario on taking over the government We have not tried to hide the facts and have openly admitted that we have serious problems on the price front but we are doing our best to beat them. □

Agricultural Labourers in Debt: A Case Study

Dr Markandeya Jha

The plight of the poor agricultural labourers needs no emphasis. They are born in debt, live in debt and bequeath bebt. In a case study of the condition of such labourers in Saharsa Block in Bihar, the author highlights the problems they are groaning under and suggests measures to improve their lot. Poverty alleviation programmes, he says, should be carried out, co-ordinated, monitored and evaluated as an integral part of planned rural development.

AGRICULTURAL LABOURERS, accounting for 7.8 percent of our total population and 25.2 per cent of the total workers in the country, occupy the most vital position in the agriculture-dominated economy of India. Despite hard labour, they happen to be the most exploited and the most uncared for. Indebtedness among them is an age-old problem. Indeed, they are born in debt, live in debt and die in debt passing on its burden to posterity.

For an in-depth study of economic problem of agricultural labour in India, Government of India conducted the first and second Agricultural Labour Enquiries in 1950-51 and 1956-57. According to the First Enquiry, 44.5 percent of the total agricultural labourer households were in debt and the average debt per family was Rs. 47. The corresponding figures according to the Second Enquiry were 63.9 per cent and Rs 88 per household respectively. The average cash debt per household of agricultural labourers (inclusive of rural artisans) rose to Rs. 652 in 1971 and Rs. 1678 in 1981 as revealed by the All-India Debt and Investment Survey, 1981-82 carried out by National Sample Survey (NSS) 37th round, January to December 1982.

The problem of ever-growing debt-burden of agricutural labourers has been a matter of concern. Liquidation of old debts and establishment of suitable agencies to provide institutional credit to landless labourers and other weaker sections like small and marginal farmers, rural artisans, Scheduled Castes and Scheduled Tribes are now part of rural development programmes. They are related to som other measures like abolition of bonded labour an their rehabilitation, distribution of surplus lan among the landless agricultural labourers and oth landless poor, provision of house-sites ar construction of houses for the weaker section revision of minimum wages for agricultur labourers etc. The ongoing schemes of rur development like IRDP and Jawahar Rozgar Yojan are programmes designed to alleviate poverty amon the rural poor of which agricultural labour is th largest segment. Success of these programme depends on how many of the weaker sections hav crossed the poverty line and rescued from their ancestor debt-burden. The efficacy of remedial measures for th liquidation of debts and arrangements for supply c credit to the weaker sections can be tested only a micro-level. The present evaluation study is a attempt in this direction.

The field of study, the Saharsa Block of the distri of Saharsa (Bihar), presents a true pricture of ou rural economy dominated by agriculture an agricultural labourers. The block, comprising 3 Panchayats and 85 villages, has an area of over 258 s Km. which is 4.3 percent of the total area of th district. The density of population is 538 per sq. Kn and the total population, as per last census, 2,07,623. Of the total working force of 63,59 agricultural labourers numbering 26,138 account fo 41 per cent followed by farmers numbering 22,195 (3 percent) and other workers numbering 15,263 (24 pe cent)

METHODOLOGY

The study covers 250 sample households of agricu tural labourers with a total population of 18 representing nearly one per cent of the total numb of agricultural labourers in the block. The sampl households were selected from five villages of fi different Panchayats by stratified sampling metho

In this study it is intended to test the followi hypotheses:

> the income-expenditure gap of agricultur labourers is so wide that it is bound to cre in non-viable domestic economy compelli them to borrow money for their day-to-d needs.

the debt liquidation measures so far adopted have not proved effective.

Institutional arrangements for supplying credit/loan have not yielded expected results. They are forced to go to the private money lenders in times of need.

FINDINGS

Income-expenditure gap: The per capita per annum income of agricultural labourers is only Rs. 240.90 because of low wage rates, lack of employment opportunities and large size of their family. The pattern of expenditure shows that 79.9 percent of their expenditure is incurred on foodstuffs, mostly cereals like wheat, maize, rice, etc. The average per capita income in relation to the average per capita expenditure reveals an average per capita deficit of Rs. 63.49 per annum.

The study points out that 95.6 percent of sample households have to spend more than their income. Only 2 percent have income just sufficient to meet their expenditure.

Burden of debt: The study revealed that only 6 out of 250 sample households are able to have some savings regularly or occasionally, 5 of the households have income just sufficient to meet their expenditure and 239 have to resort to borrowings to meet both ends meet.

Among the indebted households, 76 per cent owed a debt upto Rs. 1000, 20 percent between Rs. 1001 and Rs. 2000, and 0.5 per cent between Rs. 4000 and Rs. 5,000. The total amount of cash-debt is Rs. 1,15,612.

Purpose of Debt· The study indicates that 56 percent of indebted households owe debt taken for economic purposes, i e for meeting house-hold consumption expenditure, 30.5 percent for productive purposes such as cultivation and dairy activities and 12.5 percent for business purposes

The sample households owed debts for more than one purpose. For example, 36.5 percent took loans for marriage, birth, death etc., 32 per cent for medicare, 9 per cent for litigation, festivals, etc. and 26 per cent of miscellaneous purposes.

Sources of debts: The survey results reveal that institutional agencies like banks and co-operatives provide loans only to 25.5 per cent indebted households accounting for nearly 41 per cent of indebted amount. Non-institutional sources like village money-leaders, grocers, cultivators, friends and relations provide loans to 76 per cent of the households accounting for 60 per cent of the debt-amount.

Remedial measures: The remedial measures so far adopted are three fold-liquidation and settlement of old debts, arrangement for institutional sources of credit and direct attack on poverty, unemployment and exploitation.

Legislative measures in the shape of the Debt Relief Acts are enforced in almost all the States. In Bihar, there are two specific Acts, the Bihar Moneylenders Act, 1974 and The Bihar Debt Relief Act, 1976. But the provisions of these Acts are not being enforced strictly due to various factors like mass illiteracy, social and moral bindings and lack of publicity of the provisions of the Acts in the rural areas.

As regards credit supply to the weaker sections of society, a multi-agency approach has been adopted as more than one agency are in the field such as Regional Rural Banks, commercial banks with widespread rural branches, cooperative credit societies, Khadi & Village Industries Board etc. But the impact of these credit agencies is not so marked as to wipe out the private credit agencies. Though a welcome change in the trend is visible and institutional agencies are gradually replacing private money-lenders, the dominance of the latter is still felt in the villages.

A more positive and permanent solution to the problem of indebtedness among agricultural labourer lies in direct attack on their poverty and unemployment. Despite multiplicity of development programmes the net result as per our study, is not encouraging. The real success of these programmes lies not in achieving physical and financial targets but in the creation of assets and the flow of incremental income from such assets. The study showed that 59.6 per cent of the sample households earn an average annual income between Rs. 4000 and Rs. 5000, 25.2 per cent, between Rs. 6000 and Rs. 8000, 12.8 per cent between Rs. 2000 and Rs. 3000 and only 2.4 per cent of the total households, above Rs. 9000. This indicates that more than 95 per cent of the sample house-holds are much below the poverty line or Rs. 6400, thus manifesting the myth and reality about the implementation and impact of the poverty alleviation programmes.

SUGGESTIONS

For effective imlementation of the remedial measurs, following steps may be taken:

* Legislative measures for liquidation of debts of agricultural labourers must be enforced strictly and any type of harassment to debtors by creditors owing to liquidated debts must be dealt with severly.
* Multiplicity of credit institutions should be avoided as Regional Rural Banks and Primary Agricultural Credit Societies should be preferred to cater to the needs of agricultural labourers.
* Pass-book system of loan account should be introduced to ensure that types of loan taken, amount involved and the agencies advancing loans are indicated.
* While consumption loans are extended for genuine needs, production and investment

(Contd. on page 34)

Rural Insurance: A Study

K. Chidambaram and T. Margaret

The authors note in this study that a large number of policies taken under compulsion from financers tends to lapse with the repayment of the loan. They suggest a more aggressive approach with a larger net-work to reach the needy.

IN INDIA NEARLY 70 per cent of the poeple depend upon agriculture and agro based industries for their living. The uncertainties of agricultural and farm success being a common phenomenon in India, rural insurance is an indispensable security to farmers. However, a vast majority of the farmers have not availed of the various insurance schemes offered by the insurance companies. Their response to rural insurance is at present lukewarm. Hence in this paper an attempt has been made to throw light on the policy holders' level of utilisation relating to the various rural insurance schemes promoted by the New India Assurance Company in Tirunelveli District.

This is an empirical study based on survey method. The primary data for this study has been collected directly from the policy holders who have taken rural insurance policy under the New India Assurance Company in Tirunelveli District. An Interview Schedule was used for data collection. The researcher selected a sample of 120 respondents by adopting convenience sampling technique. However care was taken to include policy holders of all the popular insurance schemes in the study area, namely, cattle insurance, sheep and goat insurance, poultry insurance, animal driven cart insurance, pumpset insurance, janata personal accident insurance and gramin personal accident insurance. In addition to these seven policies, the other rural policies offered by the New India Assurance Company are horse, pony and mule insurance, camel insurance, dog insurance, elephant insurance, duck insurance, brackish water prawn insurance, inland fish insurance, hut insurance, insurance of silk worms, honey bee insurance, gobar gas insurance and new well insurance.

In the normal course an increase in the number of policies will mean an increase in the level of utilisation. Out of the 120 respondents selected, 86 (71.7%) have only one policy each while 34 (28.3%) have more than one policy. This shows that the level of utilisation according to this component is less among the respondents. Regarding the policy amount, majority of the sample policy holders (75%) have taken policies less than Rs. 7500 - which is not very satisfactory.

The number of years for which the policy is taken is an important component in determining the level of utilisation. The greater the period the longer will be the relationship of the policy holders with the company. Out of th 120 respondents, 70 (58.3%) have taken policy for only one year and 50 (41.7%) for more than one year. Therefore, it could be inferred that the level of utilisation is not satisfactory according to this component.

Banks play an important role in procuring business for New India Assurance Company. When farmers take loans for purchasing livestock and agricultural implements from banks, the assets are immediately insured. So the fact whether the respondent has taken the policy on bank's compulsion or voluntarily plays an important part in determining the level of utilisation. The dismaying observation was that majority of the policy holders (68.3%) have taken policies only on the insistence of banks. Hence the level of utilisation according to this component is not very good.

Generally farmers have the habit of insuring their livestock for only one year because they dispose of their livestock frequently. So if the renewal of policy is also frequent, then the level of utilisation can be taken to be high. But it was observed that 82 respondents did not renew their policies regularly. Therefore, the level of utilisatioin according to this component is poor.

A policy holder who have taken advantage of other insurance schemes along with rural insurance will be considered to be more insurance-minded having a higher level of utilisation than a policy holder who has taken rural insurance policy alone. Since the list of other types of insurance is numerous, only the more common Crop Insurance and Life Insurance are considered. It was observed that 78 (65%) respondents have not taken Crop Insurance and 98 (81.7%) have not taken Life Insurance. The Life Insurance Policy is [illegible]

popularity because the General Indsurance Corporation has introduced Janata Personal Accident Insurance and Gramin Personal Accident Insurance to insure the lives of people with the policy amounts of Rs. 15,000/- and Rs. 6,000/-for a premium of only Rs. 12/- and Rs. 7/- respectively. These policies are favoured by the rural populace.

UTILISATION LEVEL

On the basis of the overall level of utilisation the sample respondents can be grouped into three categories viz. high, medium and low level utilisers. For this purpose a scale has been devised. Scores were given to the various components on the following basis. Five points each is given if a policy holder had taken more than one policy, taken the policy voluntarily, taken a policy for more than one year, if renewal is made regularly, if crop insurance is taken and if life insurance is taken. No score is given if a respondent had taken only one policy, taken a policy on bank's compulsions, taken a policy for only one year, no renewal is made and if no crop insurance and life insurance is taken. No score is given if the policy amount is less than Rs. 2500; score one is given if the policy amount is between Rs. 2501/- an Rs. 5000/; score two is given if the policy amount is between Rs. 5001/- and Rs. 7500/- score three is given if the policy amount is between Rs. 7501 and Rs. 10,000/-score four is given if the policy amount is between Rs. 10,001/- and Rs. 12,500 and the maximum score of five is given if the policy amount is above Rs. 12,500.

CONCLUSION

Whilst it is clear from the study conducted that rural insurance schemes are at present adequately covering risks in respect of assets financed by banks or Government agencies, insurance consciousness amongst the rural masses is yet to take root. The vast majority of policies under rural insurance are a result of compulsion from the financiers. Hence there is a tendency to allow policies to lapse with the repayment of the loan.

The introduction of rural insurance scheme as a by-product of nationalisation of the insurance industry is to provide cheap risk coverage to the means of livelihood of the rural poor. Outside the ambit of loan beneficiaries, rural insurance has made little or no impact. Consequently, this has limited the business turn-over of the Company, as a huge segment of the insurable interest in the countryside still lies untouched and on the other hand the uninsured farmer continues to be plagued by the uncertainties of his living. The objectives of nationalisation must be achieved to the fullest and this could be fulfilled only through a more aggressive approach by the company to spread widely the message of insurance and by the use of a larger network of well-paid agents to bring the Company closer to the people. □

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Agricultural Credit: A Study

T. Prabhakar Reddy

In this study, the author draws attention to the dilemma of credit distribution. On the one side, the poor are denied the due because of some institutional requirements and on the other there is the problem of recovery of loans from the better off farmers. The author feels that in the absence of a clear cut policy, equitable distribution of institutional credit is impossible to ensure.

AGRICULTURAL PERFORMANCE IN India varies from region to region depending on factors such as soil conditions, land holding size, nature of agricultural technology, and availability of adequate and timely water, research facilities, farm management skills and crop insurance. Agricultural credit is one of these crucial factors. Its importance has to be seen in the context of India's vast rural population, small agricultural holdings, low income, and the limited capacity of farmers to absorb and repay loans.

Of the two broad categories of credit available now, viz., institutional and private, institutional credit is the most ideal and necessary. Its non-availability in right amount in the right time and at reasonable rates of interest to the needy farmers is a major hindrance to India's agricultural development. Historically speaking, Indian agriculture has been at the mercy of usurious moneylenders, and the small farmers continue to groan under the heavy burden of debt. Attempts to reduce this burden, partly by relief measures and partly by providing for institutional credit on easier terms have proved to be mere palliatives. In fact, such attempts have benefited mostly the few credit-worthy famers leaving the rest to depend on moneylenders. The situation is still so alarming and disconcerting that it calls for urgent and immediate efforts to evolve a long term credit policy, especially for protecting the small and marginal farmers.

The study is based on data collected in 1985-86 from rural beneficiaries of institutional credit in the Karimnagar district of Andhra Pradesh in four field trips of one month duration each. Choppadandi, an irrigated village and Puttapaka, an unirrigated village were selected from Choppadandi and Manthani *mandals* respectively. One hundred peasants from each of these villages were interviewed by using a structured schedule. Wherever necessary, these data have been supplemented by and cross-checked with secondary data from banking institutions, *patwaris, patels,* and *sarpanches.*

The data collected were for one full agricultural year (1985-86), which was found to be a normal year, when farmers did not experience any drought, famine or any other calamity.

Classification of peasantry: In order to understand the economic aspects of the respondents it was found necessary to classify them. For doing this a modified version of Sundarayya's classification of peasantry in Telangana region was adopted. According to this modified version the peasantry consists of the following four categories.

Agricultural labourers: or persons who, though owning small plots of land, derive their family income mainly from working for wages in agriculture or in some subsidiary occupations.

Poor peasants: or persons who do not employ wage labour except under compelling conditions, and hence do not exploit it, whose net income from land is not sufficient for maintenance of their family, and who augment their income by working for others for wages or by some subsidiary occupations.

Middle peasants: or persons who phsically participate in all major agricultural operations on their holdings (owned or leased in) alongwith family labour and hired labour, with former exceeding the latter, and the income from the former constituting the bigger share of the total income, and whose surplus usable as capital is availabe only in favourable years, while in other years their income is just sufficient for the maintenance of their family, and

Rich peasants: or persons who physically

participate in all major agricultural operations on their holdings (owned or leased in) alongwith their family members but still appropriate the surplus produce especially by employing more hired labour than family labour.

On top of this hierarchy of the peasantry are the landlords or persons who do not physically participate in any of the major agricultural operations during the year, but appropriate the surplus produce by either leasing out their lands on a rack-rent or employing the labourers and supervising their work.

Based on the above classification, the respondents with no land or less than 2.00 acres of operational holding, 2.01 to 4.00 acres, 4.01 to 6.00 acres, 6.01 to 8.00 acres, and 8.01 acres and above are treated as agricultural labourers, poor peasants, middle peasants, rich peasants, and landlords respectively.

MAIN FINDINGS

Table 1 shows that the peracre demand for credit was the highest for agricultural labourers, poor peasants, and middle peasants (Rs. 364, Rs. 343 and Rs. 311 respectively) whereas it was the lowest for landlords (Rs. 244) and for rich peasants (Rs. 287). The supply of credit per acre was lower than the demand for it in the case of the first three size groups and supply-demand gap was negative. The landlords and rich peasants had a positive supply-demand gap representing the higher supply of credit per acre than the demand for it. This was because of their solvency and fixed capital ownership which gave them passage to agricultural credit. The negative supply-demand gap for the agricultural labourers was maximum (40.78 per cent), whereas that for the middle peasants was the minimum (10.96 per cent). On the other hand, the positive gap was the maximum in the case of the landlords (28.03 per cent) and the rich peasants (5.20 per cent). The percentage variations in the supply-demand gap highlight the magnitude of the problem of getting loans. In evolving a credit policy it is necessary to take into account this gap.

Table I

Demand and Supply Gap in Credit by Size group of holdings

Sl. No.	Size group of holding (in acres)	Demand for credit per acre (Rs.)	Supply of credit per acre (Rs.)	Demand and Supply in Rs.	gap in %
.	Below 2.00	364.00	215.55	-148 45	40 78
.	2.01 to 4.00	343.00	259 60	-83.40	24 31
	4.01 to 6.00	311 00	276.90	-34.10	10 96
	6.01 to 8.00	287.00	301.95	14.95	5 20
.	8.01 and above	244.00	312.40	68.40	28.03

Source: Tabulated from the field-data

The landlords and rich peasants met their credit demand chiefly from commercial banks and co-operative societies whereas the agricultural labourers, poor and middle peasants mainly depend on money lenders and co-operative societies. The commercial banks hardly met 10.8 per cent of the total borrowed capital needed by agricultural labourers. The dependence on moneylenders was hardly 3.2 per cent of the borrowed capital in the case of the landlords and 14 per cent in the case of rich peasants. The comparatively greater dependence of the poor peasants on local moneylenders and traders for credit, that too at an exorbitant rate of interest, is partly due to the security-oriented credit policies of the organised institutions as well as greater incidence of poverty among the poor peasants. This problem of access to credit is due to asset-based loan policies of credit intitutions.

In a situation where landlords and rich peasants wield considerable power at the local level, it is impossible to ensure an equitable distribution of institutional credit in the absence of a clear-cut policy 'from above' regarding the effective distribution and allocation of credit among the different size classes.

The landlords and the rich peasants used the credit mainly for non-agricultural purposes (to the extent of 71.5 per cent and 67 per cent respectively). The agricultural labourers, poor and middle peasants used their credit mainly for agricultural purposes. The rate of repayment by the middle peasants was 57.2 per cent, poor peasants 53.6 per cent, and agricultural labourers 51.4 per cent whereas that by rich peasants and landlords was 41.6 and 35.7 per cent respectively. This clearly indicates that the rate of repayment was higher for middle and poor peasants than for the rich peasants and landlords. Due to better socio-economic and political conditions the rich farmers get the credit on the one hand, and make more profit out of it by investing in non-agricultural purposes on the other. Since the money is locked in non-agricultural investment, they often default in repaying the loans. Even the poor peasants were diverting their available resources to the non-agricultural purposes to meet their off-season consumption expenditure. The ultimate result was overdues in many rural credit institutions which have become chronic and critical, jeopardising the very existence of the institutions. It is widely believed that poor recoveries in the co-operatives are the result of political pressures. Apart from these reasons, the ineffective management of the institutions, and lack of effective supervision over credit also result in poor recovery.

The miscellaneous expenditure was high in the case of agricultural labourers and poor peasants because of middlemen and cheats who play a dominant role in getting the loans sanctioned. The borrowers incurred some expenditure on middlemen who arranged the loans for them in time, and some kind of travelling expenses too. Miscellaneous expenditure also includes the expenditure for writing the promissory note duly signed by the borrower and two witnesses.

OBSERVATIONS AND CONCLUSIONS

To sum up the findings, the study brings to the fore the following three issues. First, the existing level of credit supply from organised as well as unorganised sources is inadequate for poor peasants and requires a reformulation of the policy on credit allocation and distribution. Second, in order to fill the supply-demand gap the credit should be linked with production needs rather than the assets of borrowers. None should be refused a loan merely on the ground that he is not able to provide enough security; if the purpose is established to be productive and capable of generating sufficient incremental income. Further the banks have to modify their security procedures and methods of valuation, so that the small farmer can break the vicious circle of poverty, fulfil his basic needs and move towards a higher standard of living. Third, the cost of borrowing is higher for the poor peasants due to the exorbitant rate of interest charged by the moneylenders which calls for the expansion of commercial banks and co-operatives in the district.

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We must try to increase our tax revenues. We should do so, as far as possible, by expanding the tax base, and improving compliance with our laws rather than by raising tax rates.

We must also ask ourselves similar questions about some of our pricing policies. The growing annual deficits of the State Electricity Boards are extremely worrying. During the Seventh Plan period they lost no less than Rs. 11,000 crores. If this trend continues your Governments may soon reach a point of no return where the lack of resources make it impossib[le] for them to implement any more power projects.

As it will take some time to turn our financ[es] around we need to think of innovative ways [of] financing particularly our infrastructure projects. W[e] have already taken a decision to allow the priva[te] sector, to invest in power in the Eighth Pla[n]. Participation in other infrastructure areas could al[so] be considered.

We need a spirit of austerity in the country if we a[re] to generate the savings we need for nation-buildin[g]. We must therefore tailor our fiscal incentives to gi[ve] the maximum incentive to savings. Private saving[s] must be encouraged to flow into producti[ve] investment through the banks and other financi[al] institutions through the capital market, and throu[gh] direct investment. Simultaneously, we must use o[ur] fiscal tools to actively discourage the use of savin[gs] for amassing unproductive wealth. □

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Due to biological and chemical contamination [of] water, a large number of the rural peop[le] predominantly tribals, suffered from diseases li[ke] cholera, gastro enteritis jaundice, typhoid and seve[re] intestinal ailments. Thanks to the Technolo[gy] Mission, the incidence of such diseases registere[d a] fall by about 30 per cent. During 1984-85, there w[ere] about two and a half lakh problem villages in Ind[ia]. Within a period of two years (1976-87), the Missi[on] succeeded in reducing the water problem in ab[out] 95,000 villages. Presently, about one lakh and f[...] thousand problem villages exist. In the pre[...] phase, in about 18 per cent of the total probl[em] villages biological contamination of drinking wa[ter] was a major problem and chemical contaminat[ion] of the sources of water in 15 per cent villages. It [has] been planned now that during 1990-91 phase [a] minimum of 40 litres of water would be supplie[d to] the people per day in the non-desert areas and [...] litres would be supplied to the people of de[sert] villages.

Under the Mission, control of fluorosis in w[ater] and removal of iron is also taken up besi[des] conservation of water and eradication of gui[nea] worm from the sources of drinking water in villa[ges]. The Nagpur-based National Environment Enginee[ring] Research Institute (NEERI) has been entrusted w[ith] the task of removing fluorosis and providing w[ater] with permissible limits of fluoride. Till 1988-89, [...] 10,000 villages spread over in 13 States/U[nion] Territories were provided fluorosis free drin[king] water. The Central Salt and Marine Chemi[cals] Research Institute Bhavnagar CSMCRI has [...] several measures to remove excessive salinit[y in] drinking water in the coastal areas.

The author is a Journ[...]

Honey: The Untapped Potential

J.S.Sidhu and G.S. Mander

The authors set out a ten-year strategy for boosting honey production which they say will also supplement income of small and marginal farmers substantially. They suggest setting up of an apex organisation which will co-ordinate, among other things, in marketing the product internally and externally.

THROUGHOUT HISTORY, HONEY has been hailed as one of the chief sweet foods of man as well as a source of quick energy. To produce a pound of this amazing food, bees have to travel about forty thousand miles and to visit over two million flowers. With unique characteristics and flavour, honey can be used as a better natural substitute for sugar. It can provide same sweetness and additional nutrients and flavour with less number of calories as compared to sugar. Honey has 304 k. cal/100 gm, while sugar has [illegible] k. cal/100 gm. Its content of simple sugars like fructose is easily digestible. Besides, honey is used in cookery and confectionary by giving superior flavour, and to help cakes and bread stay fresh longer. It is used for icing required for decorative cakes and pasteries. It is being used as preservator (a better substitute for sugar) in jellies, sauces and fruit drinks. This may be used to add sweetness and flavour to ice-creams, replacing sugar entirely. Apart from food uses honey is also used in cosmetics, toiletries anti-freeze mixtures and medicines It can also be used to prepare wine and beer

Besides these direct uses of honey production what is generally not known is the benefits to the crops from the pollination activities associated with honey production. The honey bees help to cross-pollinate a large number of fruit trees, vegetables and fodders. Some crops are such that they would bear no fruit if the bees did not visit and pollinate them. The gains from bees because of their role in the production of fruit and seeds are many times those from honey and wax.

With increase in the uses of honey over time, its production also increased al over the world The production of honey in the world increased from 860 thousand tonnes in 1970 to 1110 thousand tonnes in 1988. Total world trade of commodity has increased from 94 thousand tonnes, valued at U.S. $ 30 million in 1966 to 310 thousand tonnes valued at U.S $ 305 million in 1986. The major exporting countries include China, Mexico, Argentina, Hungary and FRG and major importing countries: U.S.A., Japan, U.K. and F.R.G. Production of honey in India has also increased from 43 thousand tonnes in 1980 to 51 thousand tonnes in 1988.

The introduction of Italian bees in Punjab in 1977-78 aroused the interest of Punjab farmers to adopt bee keeping as a subsidiary enterprise. As a result, the number of bee keepers in Punjab increased from 2 with 5 colonies of Italian bees in 1976 to 7800 bee keepers with 75000 colonies in 1989. The production of honey in Punjab increased to 800 tonnes during the same period

ECONOMICS OF BEE KEEPING

Though honey production is a natural phenomenon and could be collected from wild honey bee colonies without incurring any expenses. for its adoption as a subsidiary enterprise, the farmer has to incur some fixed as well as variable costs, The fixed costs include the cost of bee hives with stands, frames with bees, foundation wax sheets, bee veil, gloves, smoker, hive tool, queen excluder, wire entrance guard, queen's cage, swarm catching basket, honey extractor etc. The variable costs include, expenditure on sugar, sulphur, packing material, repair of boxes, labour input and marketing etc. The return include the sale of honey, wax and hives etc.

These costs and returns were estimated from a sample of 35 bee keepers of Punjab and are given in Table 1. Total fixed costs were estimated at Rs. 57.74 per colony. Average yield per hive came to be 15.6 kg Thus, the average fixed cost per kg of honey came to Rs. 3.50. Total variable costs turned out to be Rs. 72.74 per colony and Rs. 4.66 per kg of honey. Cost of labour accounted for major share of variable costs. It was Rs 51.53 per hive and Rs. 3.30 per kg of honey. The total cost of honey production was estimated at Rs. 127.48 per hive and Rs. 8.16 per kg of honey.

Total gross returns from the enterprise was Rs. 459.63 per hive and Rs 29.46 per kg of honey. The net returns were worked out to be Rs. 332.15 per colony and Rs. 21.29 per kg of honey.

POTENTIAL

There are numerous sources from which the nectar can be collected. Out of these, the major sources which are spread over nearly 86,304 thousand ha. in India include area under exploitable forests (33,580 thousand ha.), pulses (22,737 thousand ha.), oilseeds (18,924 thousand ha.), cotton (7,382 thousand ha.), jute and mesta (1,129 thousand ha.) and fruits (2,552 thousand ha.). About 3 colonies can be easily supported per hectare of these rich sources of nectar. On the basis of the carrying capacity of these sources, the total number of colonies are estimated at 259 million. On the basis of estimated yield of 15.6 kgs per colony from the sample, the total potential of honey production in India is estimated at about 4 million tonnes, valued at 3743 million U.S. dollars in international market (Table II). This potential can be tapped by providing 4 colonies to each of about 67 million small and marginal farmers of the country. Such a step would result into increase in net income of these farm families.

It is estimated that each colony will generate net income of about Rs. 332.00. The enterprise will, thus, provide a supplementary income of Rs. 1,328.00 per annum to each of these farm families. Honey flora is not evenly distributed in the country. Some of the states are relatively rich in the source of nectar whereas some parts are poor in this source depending upon geographical and climatic conditions. Therefore, there is a need for separate estimates for different agroclimatic regions so that state level planning can be done for tapping this potential more efficiently. In view of this, the estimates for Punjab State have been attempted.

In Punjab, the area under major sources of flora (including forest, pulses, oilseeds, cotton, berseem and fruits) is about 1,412 thousand hectares. The total number of colonies that can be supported with this flora is estimated at about 4.24 million. With average honey production per colony, the total production of honey can be increased to 66 thousand tonnes. This potential can be realised by providing 10 colonies each to the four lakh small and marginal farmers which will provide a net supplementary income of Rs. 3,320 per annum to each of these families.

TAPPING THE POTENTIAL

It will require stringent efforts on the part of the Government to realise this natural potential. The most important step in this direction is to create awareness amongst small and marginal farmers, processors and consumers regarding benefits of honey production as well as consumption. For this purpose, the coordinated efforts of all agricultural extension agencies along with media are needed. For its adoption on such a large scale, it requires training programmes at different levels. These should be aimed at training the personnel of extension agencies who can further impart training to the farmers through various government programmes like to lab to land, T & V, SMFALA etc.

Table I

Average Costs and Returns of Honey Production on Sample Bee farms in Punjab

(Rupees)

Items		Amount Per colony (hive)	Amount per kg
	Costs		
	1. Fixed costs	54.74	3 50
	2. Variable costs		
	(a) Sugar & sulphur	4.42	0 28
	(b) Packing material	8.60	0.55
	(c) Repair of boxes	3.55	0.23
	(d) Rent of honey extractor	1.11	0.07
	(e) Labour	51.53	3 30
	(f) Interest on capital (@ 4% D I R)	3.53	0 23
	Total variable costs	72 74	4 66
	Total cost	127.48	8 16
II	**Returns**		
	(a) Honey	365.46	23 43
	(b) Wax	0.59	0 04
	(c) Sale of Hives	92.40	5 92
	(d) Rent of Extractor	1.18	0 08
	Total returns	459.63	29 46
(III)	Net returns	332.15	21 29

Average yield per hive = 15.6 kg

Table II

Potential of Honey production in Punjab and India

	Items	Punjab	India
(a)	Area under crops suitable for honey prouction (000' hectare)		
	1 Forests	224	33580*
	2. Pulses	228	22737
	3. Oilseeds	160	18924
	4. Cotton	567	7382
	5. Berseem	180	N.A
	6. Jute and Mesta	–	1129
	7 Fruits	53	2552
	Total (000' ha)	1412	86304
	Carrying capacity in number of colonies per hectare	3	3
	Total number of colonies	4236000	258912000
	Average honey production per colony (Kg)	15.6	15.6
	Total honey production (000' tonnes)	66.546	4039 027 (U.S $ 3743 million)
	Total number of marginal and small farmer (No. in thousand)	396 79	66680
	Approx number of colonies per marginal/small farmer	10	4

* Explorable Forest Area

Figures in the parentheses denote value of honey in the international markets.

The multiplication of honey bee colonies at a war footing should be organised to distribute these colonies to the small and marginal farmers through extension agencies. Taking into consideration, the existing number of honey bee colonies, it is possible to multiply these to the required number of colonies within five years. Even if the time lag between the beginning of strategy and its final adoption by the farmers is taken into consideration, the task may be easily completed in just two Five Year plans. Simultaneously, the financial institutions should be involved for providing credit under D.I.R. Schemes to help the farmers to adopt this programme. On the basis of initial fixed costs and the variable costs for the first year of the enterprise, it is estimated that the whole programme will need about Rs. 20,000 crores to be spread over 10 year period, thereby Rs. 2000 crores to be disbursed every year to the adopters of the project. Each adopter should be provided a loan of Rs. 3000 for this purpose.

Whenever there is adoption of a new enterprise, the major problem is the marketing of the product. To develop this enterprise, an efficient and well developed marketing infrastructure is a must. Even now this enterprise is in infancy. The farmers are facing marketing problems because of lack of infrastructure. An efficient arrangement to collect honey from small and marginal farmers is needed. For this, honey collection centres at district level equipped with honey collection mobile vans should be set up. From these collection centres, the honey can be distributed either in the internal markets or for exports. Food processing industry should b encouraged to use honey as a substitute for sugar i different products, both for internal consumption a well as for exports through concessions in excise dut and export subsidies. To coordinate all these activitie some organisation like National Honey Board shoul be set up with its branches at state level on th pattern of already existing National Board fo Plantation Crops etc. Food processing industr should be guided in exploring the market a international level for new products where honey ca be used.

The above mentioned potential of honey productio in India is a rough estimate based on availabl information and our personal judgement. Even i 1/10th of this vast potential is realised it will excee the total world trade and India, like China ca become a major exporter of honey. The majo objective of our article in making crude estimates is t create awareness and generate curiosity amon policy makers towards this untapped natur potential so that the strategies for tapping of thi potential may be included in Eighth Five Year Plar Such a step would help supplementing the income o the lowest income strata of farming community an at the same time it will help in utilising surplu labour of agriculturists during the lean period beside generating valuable foreign exchange.

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Book Review

Co-operative Democracy vis-a-vis Member's Education by Daman Prakash, COOP Times, New Delhi, 1988. Pages 174, Rs. 120

Daman Parakash worked with the International Cooperative Alliance in India for over twenty years. The book appears to have been prompted by a field study of ten cooperatives in Indore during 1971-75.

Paul Lambert has defined a co-operative society as an enterprise formed and directed by an association of user, applying within itself, the rules of democracy and directly intended to serve both its own members and community as a whole.' Open membership and democratic management are amongst the essential principles of co-operation. Lambert has mentioned 'economic democracy' as the cardinal principle of o-operation. The other aspects are social democracy ind political democracy. Participation is on the basis of equality. The author examines in chapter IV roblems of co-operative democracy. The charts are ieat and attractive.

Great Britain, Germany, Sweden and Japan are one of the countries where co-operatives have vitnessed fairly widespread functioning. In India, o-operative credit societies were common, mainly ecause of the passing of Co-operative Credit ocieties Act, 1904. That paved the way for the growth of co-operatives in many directions. Beginning with a nembership of 1.2 million in 1918, it grew at 145 nillion in 1985. It is the largest country membership of co-operatives in the world, with 340,000 grass root evel primaries, 1,700 Central (district) co-operatives ind 22 National co-operative organisations. Average nembership per society is, however, small being at 80, the deposit per member being Rs. 46 only. Making cooperatives viable in their operations, articularly its size, has been a concern for the policy nakers for a long time. In chapters VII and VIII the uthor traces features of co-operaties in India. Both RBI and NABARD have been engaged in promoting he cooperative movement in the country, and in articular, co-operative education and training. For laying a constructive role by members, mere ttendance at the Annual General Meeting is not ufficient; they must participate. That will lend trength to the movement.

The author also appends simple 'pledges' to be ffirmed by members, the managing committee, and he employees. The era of 'dependency syndrome' nust end. Spoon feeding is not democratic. The ooperatives must gain strength within themselves, n their own, like the AMUL. Therefore, human esource development is important and also selfeliance. The list of cooperative values developed by he author is good and should be imbided by all. Cooperatives certainly can help make a different and etter kind of world.

" On the whole, an average book, particularly in organising the material, but certainly an important reference material."

S.M. Shah

Research in Library and Information Science in India, by Dr. P.S.G. Kumar, Indexed by Dr. A Tejomurty and Dr. H.R. Chopra, Published by Concept Publishing Company, Bali Nagar, New Delhi, Pages 343 price Rs.220/-

The Students of Library Science Research will find this bibliography quite useful. In fact there has been a great need for a bibliography on library science research done in India as more than 38 universities in the country provide Master of Library and Information Science Courses and 18 universities have research facilities. It is only from the bibliography that one knows the work having been done in a particular field or under studies in our universites and also helps avoid duplicate efforts.

The Association of Indian Universities is, however, doing some work in this regard by bringing out bibliography of doctoral dissertations and reports new ones in the issues of the University News but that is not enough. In this bibliography about 1800 entries have been arranged under four sections spread over nine parts. These also cover MLIS, M.phil and Ph. D. dissertations submitted to various Indian Universities. In the subject part, entries have also been arranged alphabetically by title giving further information about the author, institution, year and the name of the superviser. The thing that makes it easy to consult is a separate index for all the details.

It is an important and valuable work which should prove useful to library personnel in gereral and to researchers and students in particular. It is a good team work but needs constant updating and collection of more details from different universities. The information on research guides and details of dissertations is by means comprehensive. Infact it is incomplete at places. Anyhow it is a good beginning in which the authors have made a moderate attempt to fill in information gap in this area, The discipline of library and information science has its own peculiarities and problems, making it difficult for a summary treatment of the research work done in this field. This perhaps is one reason that the bibliographers do not undertake reseach work in this field of knoweldge. For some time no systimatic effort has been made to disseminate information on theses and dissertations submitted to the universities and institutions. However this information to some extent is being communicated informally among the professional colleagues but it leaves much to desire when one has to compile that information in the form of book. The book has been priced quite heavily and many research sucholars, even institutions may find it difficult to buy. On the whole the efforts of Dr. Kumar and his friends is admirable.

S.K. Nayyar

Full Development in a Planned Economy by Gautam Mathur, B.R. Publishing House, New Delhi, 1989, pp. 148, Price Rs. 95.00

In the modern era, it was Lenin who adopted National Planning as an effective device to mobilise resources and achieve planned targets. Planning in elementary form had existed both in the ancient and medieval Indian Polity. The most dynamic exponent and persistent advocate of planned economy and full national development was Jawaharlal Nehru who in his own life time saw the fulfilment of three five-year plans and by the time his daughter's reign ended in 1984, India nearly reached the take-off stage.

Professor Gautam Mathur, a brilliant and versatile economist of international calibre. has presented a set of papers dealing with different major fields covering, among others, Capital Theory, Analytical Methodology, Political Economy of Development, Planning Policy, Employment and Manpower Planning, Educational Planning, Fiscal Policy, Science Policy, Socially-purposive Management and Economic Administration.

The central problem of framing a Plan is to keep a balance between high capital-output ratio and low capital output ratio investment, which will keep inflation in check. For this purpose it is necessary to increase investment in industries having low capital-output ratio to such an extent that the extra consumption goods produced therein not only fulfil the extra demand (created by the increased investment in those activities itself) but also the demand for consumption goods created by investment in the high capital-output ratio industries.

Another need is for long-term loans at low interest rates whereas the International Bank of Reconstruction and Development gives loans on commercial principles with comparatively short repayment dates and a high rate of interest. The newer Economic-development Funds like the Special United Nations Fund for Economic Development, the International Development Association and the International Finance Corporation are meant to rectify some of the short-comings of the older agencies. But the funds at their disposal are not very large and a lot remains for them to do before they will be able to become important instruments of international financial action. There is also the need for greater coordination of the activities of the very large number of economic oganisations of the United Nations. It is time that conditions should be created which would make it easier for the socialist countries to realise that their contribution to help the under-developed countries should increasingly go in an impersonal manner through the auspices of the more technical non-politicised economic agencies of the United Nations.

The author has dealt with the problem of planning non-inflationary growth in a succint and realistic manner. Says the distinguished author: "The me of planning non-inflationary growth is to put va sub-economies of the economic system into generating growth. This is achieved by alloc investments among the processes of a sub-econo such a way as to yield the same rate of growth f goods. If this is done, then inflation can never ari that system, and in addition, further growt assured at a steady rate."

Professor Gautam Mathur has touched the co the question of planning, when he "Merely allocating so many hundred thou millions in a Plan on a 'minimum needs progran will not secure social justice. It will req supplementation by an economic revol reversing the grip of the Doctrine of Percolation replacing it by the Doctrine on Permeation wi social values and economic structure which a will save the situation."

These observations deserve a careful and co weighing down by our planners and politic There is no doubt that Professor Gautam Mathu been refreshingly and creatively frank. The boo welcome addition to the existing literatur Planning.

N.M. Khil

(Contd. from page

loans be granted somewhat liberally strict adherence to the norms of monito and evaluation which may follow on contin basis.

* Payment of minimum wages should guaranteed.
* Land reform measures particu redistributive measures should be enfo with all seriousness.
* A comprehensive scheme of social sec and labour welfare should be introduce the lines of benefit provided to indus workers.
* Labour Cooperatives should be encoura
* Poverty alleviation programmes must implemented, co-ordinated, monitored evaluated as an integral part of planned r development so that non-viable do economy of all the weaker sections inclu agricultural labourers is transformed in viable domestic economy
* For lapses in the rural development proc responsibility must be fixed to deal corruption and inefficiency. ☐

The author belong
Post Graduate Cen
Deptt. of Econo
Saharsa (Bi

JEEVAN REKHA

The Ministry of Railways, in association with Impact India Foundation, a voluntary organisation, is to launch a unique project "Jeevan Rekha", for free health care in rural and backward areas through "Hospital on Wheels". To begin with, it will be a Pilot Project at 5 centres to operate in rural and backward districts of Bihar. "Hospital On Wheels" will function from three special railway coaches fully equipped with diagnostic, medical and surgical facilities at selected railway stations of Bihar. The Foundation will run this hospital with the help of skilled doctors, technicians and other para-medical staff and offer free treatment of cases pertaining to sight, hearing and mobility. The hospital will also take up child immunisation and other health care programme during its stay at each centre. "Jeevan Rekha Hospital on Wheels" will also provide in-patient beds for post-surgical care provided inside the special train.

DEFENCE EXPORTS

Exports of defence goods are expected to earn 135 crore rupees by the end of the current financial year against over 80 crore rupees during last year. Some of the non-lethal items exported are uniforms, vehicles and communication equipment. It is estimated that Bharat Electronics Limited sold equipment worth 35 crore rupees, while Bharat Earth Movers Limited, another defence public sector undertaking, bagged orders worth 300 crore rupees.

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Vidy. Dr. Zakir Husain (

Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana is organising an essay competition open to ladies only.

The subject of the essay is — Girl in Indian Society.

There will be three prizes— Ist prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so.

The last date for receipt of the entries has been extended till 25.10.1990.

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LIMATIC PLANNING
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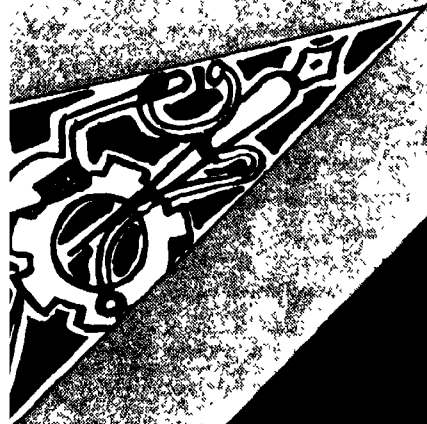
Development Diary

Export Target

The export target for 1990-91 is fixed at Rs. 36,000 crores. The key elements of the export strategy include: availability of raw materials, components and capital goods to exporters at world prices, strengthening the export incentive schemes like CCS, Duty drawback, International Price Reimbursement Scheme (IPRS), concessionary interest rates, supportive exchange rate, demand management policies, improvement in infrastructural facilities and simplification of procedures. During the year, the export of agricultural commodities is estimated to contribute about 15.88 per cent of the overall export target.

Testing Electronic Products

For the first time, three Indian laboratories have been licensed to test and certify electronic products manufactured in India for International markets. These laboratories are under the Standardisation, Testing and Quality Control (STQC) Directorate. At present electronic proudcts are sent to laboratories abroad for certification. The facility at the three Indian laboratories will help the manufacturers to cut down their expenses and uncertainty involved in the process.

The Department of Electronics has taken steps to certify electronic products from the safety angle as well. Safety Certification is a mandatory clause for entry into the Western markets for any electronic product.

Nationalised Bank Profit

Nineteen out of the 20 nationalised banks, which have finalised their accounts for the year 1989-90, achieved a profit of nearly Rs. 240 crores. Government and the Reserve Bank of India have taken series of measures to improve the performance and profitability of the public sector banks. These include augmentation of capital, higher coupon rates on Government securities and higher return on cash balances. Banks have been advised by RBI to draw up Action Plans to improve their operational efficiency.

Communication Facilities Through INSAT-ID

The Department of Telecommunications plans to improve communication facilities in the country through INSAT-ID Satellite. Subscriber Trunk Dialling (STD) facility will be provided to about 17 District Head-Quarters in remote, hilly, backward and island areas of the country. About 35 new earth stations will be set up. Satellite earth stations at Kulu, Port Blair, Imphal and Agartala are to be augmented for handling medium traffic capacity to provide STD facility from these places.

A Remote Area Business Message Network (RABMN) is being created. It will provide the following facilities:

- Interactive data communication for speed upto 1200 bps.
- Facsimile service.
- Access to domestic telex network.
- Access to International Telex Exchange.
- Access to International Data Network through VSNL Gateway Exchange.

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33 BOOK REVIEW

Agro-Climatic Regional Planning

Agro-Climatic Regional Planning aims at scientific utilisation of agricultural and allied resources to boost production, income and employment. Excerpts of the study made by the Planning Commission are being published in three instalments. The first part deals with the issue. The second part concentrates on implications of the strategy and the last one throws light on crop planning, allied activities and employment dimensions.

THE STRATEGY OF agro-climatic planning aims at a more scientific utilisation of available resources, both natural and man-made. The potential for growth and diversification would be fully exploited taking a holistic view of the climate, soil type, topography, water resources and irrigation facilities and relating them to requirements of output and employment.

As a first step, the country has been divided into 15 Regions delineated on the basis of a commonality of agro-climatic factors like soil type, rainfall, temperature, water resources, etc. In this innovative approach, based on agro-climatic zones, an overall development profile of each region is formulated through an optimal mix of land stock management, crop production, animal husbandry, aquaculture, horticulture, forestry and agro-processing activities.

The objectives of the exercise are:

(a) Attempt a broad demand-supply balance of major commodities at the national level but based on a careful analysis of potential and prospects of various Zones;

(b) Maximise net income of producers;

(c) Generate additional employment, particularly of landless labourers;

(d) Provide the framework for the scientific and sustainable use of our natural resources, particularly land, water and forests, in the long run.

The experiment of the Special Foodgrains Production Programme implemented in 169 selected districts during the last few years in the Seventh Plan provided useful initial insights for this approach and established its relevance for adoption on a countrywide scale in a long time perspective. The programmes/proposals drawn on the basis of agro-climatic zones are expected to be more relevant and meaningful for the concerned Region. This would help in the comprehensive development of the Region.

The Regions are:

(i) Western Himalayan Region
(ii) Eastern Himalayan Region
(iii) Lower Gangetic Plains Region
(iv) Middle Gangetic Plains Region
(v) Upper Gangetic Plains Region
(vi) Trans- Gangetic Plains Region
(vii) Eastern Plateau & Hills Regior
(viii) Central Plateau & Hills Region
(ix) Western Plateau & Hills Region
(x) Southern Plateau & Hills Region
(xi) East Coast Plains & Hills Region
(xii) West Coast Plains & Ghats Region
(xiii) Gujarat Plains & Hills Region
(xiv) Western Dry Region
(xv) The Islands Region

A Zonal Planning Team (Z has been set up for each of th Regions. The Team is heade the Vice-Chancellor (VC) of a S Agricultural University locate the Zone, with the VCs of ot State Agricultural Universities the Zone acting as its memb Senior Officers of the Departm of Agriculture, Irrigation Forests of the State Governm falling within the Zone have b included in the Team, apart fr representatives of the Plan Commission and of the Ur Ministries of Agriculture Water Resources. In order to gi Planning Team the required m disciplinary capability, expert the fields of satellite imag environment, finance and coop tion have also been inducted i it. Care has also been taken to h at least one representative fro Voluntary Organisation in e ZPT.

A synoptic view of agro-clim features of 15 zones dire relevant to agricultural devel ment strategy is presented Statement I. Along with resource considerations and l productivity level, relative press on land and environmental fact have been kept in view in fram this typology. Such very synop typologies are helpful for assess

the diversity of different Zones and in providing broad directions of development.

Details in respect of specific parameters relating to crop production systems, land and livestock resources, productivity level and input use and demographic features and poverty ratio as related to the above typologies are summarised in the form of a statement on Zones at a glance!

In terms of strategies for enhancing agricultural production with particular reference to foodgrains, it is evident that Middle Gangetic Plains and Eastern Plateau deserve the highest prioritye followed by Upper and Lower Gangetic Plains. Productivity level of rice (lead) crop in the former two Zones is very low, between 8 to 10 quintals per hectare. Doubling of yield level in these two zones, which is a realistic target, given the land and water resources quality, is feasible and desirable This will make a major difference to the Nation's foodgrains budget

Relatively high population pressure on lands in the Lower Gangetic Plains and the East and West Coast Plains, which also have high productivity potential, is an additional dimension to be considered in framing agricultural development strategy. At the other extreme, the Trans-Gangetic Plains, which has already tapped the potential resources, should now be moulded for a high technology and diversified agricultural system. The Western Dry Region shows an extreme typology with inherent low land productivity potential. This underlines the need for a strategy of land development, as also activity centered on non-crop based activities like livestock.

Alongwith the objective of enhancing agricultural production, which has to come from relatively resource rich Zones as identified in statement II, an equally important aim will be the maintenance of the ecosystem This is particularly true of the Himalayan and Coastal Regions. An increasing rate of deterioration of land and water primarily due to inappropriate cultivation practices and land and water management is evident in other Zones. Thus, the real test of agricultural development in future will lie in evolving a sustainable agricultural system, with a steady increase in land productivity, aggregate agricultural production and rising farm incomes

Land Livestock Resources

Land availability measured as Per Capita Culturable Land (PCCL) shows a ratio of 1:14 among Zones. Zones with richer land resources and more congenial climatic features (for crop system), generally but not always, have lower PCCL availability Plateau and the Dry

Statement I

Zonal Characterisation in the Form of Typologies

Sl. NO	Typology	Zone
(0)	(1)	(2)
1	Rich water and soil resources, high land productivity (major crops), moderate population pressure on land	Trans-Gangetic Plains (No 6)
2	Rich soil and water resources, medium productivity level and moderate population pressure on land, deteriorating environment with respect to land quality	Upper Gangetic Plains (No 5)
3	Rich water and soil resources, low productivity level, high population pressure on land, increasing proportion of problem soils	Lower and Middle Gangetic Plains (Nos 3 & 4)
4	Large volume of land and water resources, very low productivity of land with predominance of subsistence agriculture, low population pressure, high proportion of problem soils	Eastern and Central Plateau & Hills (Nos 7 & 8)
5	Less favourable soil and water resources, low land productivity, low to medium population pressure, deteriorating environment in respect of soil erosion and water quality	Western and Southern Plateau & Hills (Nos.9 & 10)
6	Rich water resources but relatively poor land, medium land productivity, medium to high population pressure, fragile eco-system	East Coast and West Coast Plains & Hills and the Islands (Nos.11, 12 & 15)
7	Less favourable land and water resources, low land productivity, low pressure on land and fragile eco-system	The Himalayan Regions (Nos.1 & 2)
8	Semi-arid to arid conditions, moderately good land quality land productivity, moderate population pressure on land	Gujarat Plains & Hills (No 13)
9	Arid conditions, large but less fertile soil resources. very low land productivity, low population pressure and fragile eco-system.	Western Dry (No. 14)

Statement II

Zones at a Glance

Zone No.	Name	Geog. Area (000 sqkm)	Popu Density (/sqkm)	NSA (%)	Forest (%)	Cultivable Land/Cap. (Ha/cap)
1	W Himalaya	245	62	18 2	45.3	0.195
2	E Himalaya	274	118	18 7	42 8	0.180
3	L Gangetic	69	692	63 8	11 0	0.098
4	M Gangetic	164	526	62 8	8 7	0.141
5	U Gangetic	143	466	70 1	4 5	0.172
6	T Gangetic	116	331	80 9	3.2	0.298
7	E Plateau	395	136	35 9	35.2	0.323
8	C Plateau	370	137	45 0	14.2	0.446
9	W Plateau	331	170	59 7	11.8	0.366
10	S Plateau	395	200	48 4	17.1	0.319
11	E Coast	197	321	43.3	18.7	0.144
12	W Coast	117	441	37.2	29.0	0.139
13	Gujarat	196	175	51.4	10.9	[illegible]
14	W Drylands	175	58	47 7	1.2	[illegible]
15	Islands	8	29	4 2	88.1	[illegible]
	All India	3195	215	47.0	19.3	[illegible]

Statement III

Cropping Specialisation in the Zones

Sl. No.	Crop/crop group	Zones of concentration	Percentage to total area	Percentage to total production
(0)	(1)	(2)	(3)	(4)
1	Rice	3, 4, 7, 11	62 0	55 3
2.	Wheat	4, 5, 6, 8	80 0	86.2
3	Jowar	8, 9, 10	86.3	87 0
4	Pulses	6, 8, 9	66 6	65.5
5	Oilseeds	8, 9, 10, 13	70.0	70.3
6	Cotton	6, 9, 10, 13	92 0	85.3
7	Sugarcane	4, 5, 9, 10	74 3	72.6
8	Fruits & Vegetables	3, 4, 5, 12	56.4	60 8

Regions have higher PCCL and Zones in alluvial plains with higher level of irrigation show lower per capita land. However, Zone 6 (Trans-Gangetic Plains) has higher per capita availability compared to other Zones in the Indo-Gangetic Plains as well as in the coast.

Livestock considered as resource, supplementing agricultural income and employment, also shows wide variations either on per capita basis or per hectare of gross cropped area, the latter indicating the relative pressure on land. As in the case of demographic features, Western Dry Region stands out as the extreme Zone with per capita livestock three times the national average. However, the relative pressure on land is not that high in view of much larger land availability. Highest ratio of livestock per hectare of Gross Cropped Area (GCA) is in Western Himalayan Region (Zone 1) and Bihar part of Middle Gangetic Plains (zone 4). Lowest per capita ratio and number per hectare of GCA is seen in West Coast Plains and Ghats (zone 12).

Agricultural Production

Crop specialisation is more in crops like sugarcane cotton, jowar and wheat as may be seen in the Statement III. In the case of rice, pulses, fruits and vegetables distribution appears to be more widespread.

In respect of some other crops, regions with low area coverage have high productivity and share in total production e.g., Trans-Gangetic Plains in the case of pulses and Upper Gangetic Plains in the case of rice and the East Coast in case of cotton.

Productivity Level and Input Use

Large variations in yield level of major crops are observed amongst Zones. In the case of rice, Trans-Gangetic plains show a yield level more than twice the national average (1400 kg/ha in TE 1984-85) Per contra, the Eastern Plateau Region which has the highest area under rice (88 lakh ha), shows only half of the national average in yield. In the case of wheat, variations are less, with Trans-Gangetic Plains showing the highest yield. Irrigation and input use possibly explain such variations (i.e. fertiliser consumption in Eastern Plateau of about 9 kg/ha compared to 77 kg/ha in Trans-Gangetic Plains). Sugarcane yield is much lower in the Gangetic Plains in spite of higher irrigation intensity, compared to Plateau Region (95 tonnes per ha in the latter compared to 42 tonnes per ha in the former)

As an aid to planning, a composite input index has been prepared including overall irrigation intensity, fertiliser use, intensity of tubewells and tractor usage. A land productivity index has also been developed in valu (using national average of v price for individual crops) returns to growers in r terms. There is wide vari input usage and appar exact functional rela between input use and productivity index. In t input use the Trans-(Plains stands out way al rest. This reflects very hi; of irrigation and fertilise the other extreme lies the Dry Region. However, productivity of land is th in the Islands, West Coast East Coast. This is explain crop mix i.e. predomin high value crops in the Zones. Trans–Gangetic have much higher productivity in terms of wheat and pulses b proportion of high valued low

Demographic Featu

Large variations are (among the Zones bo respect to population (persons per sq. km) an development indicato example literacy). Ganget (Zones 3,4, 5 and 6) are ric and water resources an higher population density by the Coastal Plains. (Lower Gangetic Plains) sh highest population densi the lowest being Zone 14 (Dry Region) Zone 12 (We stands out as showing the in terms of social develop reflected through female (56%) compared to as low a Western Dry Region. Un ment rate is found to be hi the Zones with lower pe land availability (Lower G Plains and West Coast) ratio is highest for Eastern & Hills Region (50% in followed closely by Gangetic Plains and Plateau and Hills The prod of major crops explains to extent the relationship poverty ratio

Wetlands: A New Horizon

Ram Kumar Bhakat

Wetlands are not all that bad. They have rich potentialities, given scientific management, says the author in this interesting study. The need is better appreciation of the subject which is possible through dissemination of information.

A WETLAND IS a place intermediate between the purely aquatic environment and the well-drained. **Swamps, marshes,** bogs an similar areas are some of **the examples. These habitats** perform major ecological roles in the biosphere. They are among the most productive ecosystems in the world. Some of them can produce upto eight times as much plant matter as an average wheat field. It was the swampy environment of the Carboniferous (coal-bearing) period that produced and preserved many of the fossil fuels on which we now depend. Wetlands are sources, sinks and transformers of a multitutde of chemical, biological and genetic materials. They receive wastes from natural and human sources, and have been found to cleanse polluted water, prevent floods and protect shore-line. Furthermore, they play significant roles in the landscape by providing unique habitats for a wide variety of flora and fauna. While the values of wetlands for fish and wildlife protection have been known for several decades, some of the other benefits have been identified more recently.

Economic Plants

Waterlogged habitats produce a rich collection of plants, many of which have potential for one or more economic use. These plants provide food, timber, fuel,fodder and forage, industrial products and so on Many of these products are the direct result of the extraordinary productivity of extremely specialized wetland plants Many have large leaf areas and little wood, meaning that more of a plant is devoted to creating energy and growth And herein lies the importance of these plants

Rice is the most significant wetland crop in terms of world production and impact on man, probably more than half of our population depending on it as a staple food. It is the highest yielding grain crop. growing in hot climate and fed with water by irrigation or flooding. Worldwide, its total production is second only to wheat.

The swamp sago (Metroxylon) produces starch from which sago flour is made. Through bioconversion, this flour can be used to produce either alcohol or protein. The governments of Papua New Guinea and the Philippines are considering cultivating the sugar producing mangrove palm (Nypa) on a large scale. They would use the sugar to make alcohol, and then mix it with petrol, saving money on oil imports– as the Brazilian government is doing with its programme to produce fuel alcohol from sugarcane.

Wetlands are major source of non-food plants. too. Plants like cattail, reed, etc. are used in thatching, paper production and bedding. In the several districts of West Bengal, cattail cultivation in waterlogged depressions supports a substantial portion of rural economy. In the Sunderbans (W.B.), the leaves of Nypa are extensively used for roofing. Many coastal communities inhabiting this swamp subsist on harvesting timber, firewood and producing honey and wax from the forest.

Fishery

Lakes, ponds and coastal wetlands are highly productive, spawning, nursery and feeding grounds for fish. The common fish found in freshwater wetlands, in general, are carps, catish, mullets, perches, etc. Mangrove swamps excel in fish diversity. The organic debris produced by the vegetation gives shelter and promotes foodchain support for fish of major economic value. As much as 80% of the Indian fishery catch from the lower delta region of the Ganges-Brahmaputra is from the Sunderbans wetland complex. The Hooghly-Matla estuary of this wetland harbours more than 150 bheris which are famous for prized prawns.

In and around the eastern wetlands of Calcutta for years this city's solid waste is dumped and the sewage outflow channels pass through. Here innovative farmers are creating wonders by utilizing this municipal waste in growing fish and agricultural crops. These wetlands act as a true backyard garden for this megapolis in supplying 300 tonnes of fresh vegetables daily and 8,000 tonnes, of fish each year. Well over 10,000 families survive on this marshland which has incidentally turned into the world's largest waste recycling area.

Wildlife

Wetlands support diverse plant and animals which are dependent not only on their environment b

also on each other, through the complex food-chains. And in many cases, the well-being of human beings depends on the existence of one species only. Many rare and endangered species live in and around wetlands. While some life-forms thrive only in these habitats, others spend part of their life cycle for specific purposes like nesting, feeding or breeding.

The swampy forest of the Sunderbans is the largest remaining habitat of the renowned Royal Bengal tiger which thrives there. This forest also gives shelter and security to a large number of endangered animals. The Sunderbans is able to protect animals not so much because it is protected, but because it is a wild land inaccessible to people These animals not necessarily need wetland, but they do need large stretches of wilderness., such as the Sunderbans. This picturesque landscape, particularly during tidal inundation (when soil-dwelling animals take shelter on trees) signifies how far the Nature can be cruel on the one hand and beautiful on the other.

Diversity in bird life is the essence of wetlands Myriad of aquatic birds, both local and migrants, visit these habitats. However, the importance of wetlands is not always related to numbers; some are vital grounds for rare species. For example, the bird sanctuary at Bharatpur (Rajasthan) offers habitat for exotic migrants from Afghanistan, Tibet, China and Siberia In view of this, in India, several wetland-based wildlife sanctuaries and National parks have been established.

Nature's Kidney

Swamps and marshes, once considered as the sources of diseases, can actually help maintain water quality, absorb toxic chemicals and clean up polluted water, and even act as natural treatment plants That is why scientists call them "Nature's kidneys" because of the functions they perform akin to animal kidneys.

Nutrient (mainly nitrogen) enrichment of water bodies from agricultural run-off poses hazards to aquatic life. Wetland soils favour denitrification– a process through which a substantial portion of this nitrogen can be removed. Moreover, wetland plants have been shown to remove these nutrients. These plants have biological and biochemical devices which can immobilize, transform and fix toxins of water, preventing high proportion of them from entering the food-chain.

Nowadays, aquatic plants are proving an asset in the treatment of sewage and polluted water. Water hyacinth, notoriously called the "Bengal terror" in India, although considered a nuisance is now extensively used as a pollution filter. This plant absorbs nutrients such as nitrogen, phospohorus and potassium and other toxic substances directly from water It can take out more than 75% of the lead in the contaminated water in just 24 hours.

That wetlands meticulously detoxify waste water can be proved by taking the case of East Calcutta's 4,000 acres of sewage-fed marshy-lands. Wastes from the city flow **into water hyacinth studded** lakes and ponds which serve as natural oxidation tanks.

Flood Mitigation

Wetlands reduce the danger of flooding by intercepting and storing run off waters. And riverine wet depressions are significant in this regard Marshy and low-lying lands of urban outskirts can also help faciitate urban drainage. Calcutta is a case in point. The city slopes from west to east and its entire drainage runs into the vast marshy depressions in the eastern fringe During the last several decades due to rapid urbanization, some of these low-lying lands have been filled up. That is why, several **areas in the east and south-east of** the city experience severe waterlogging in the monsoon.

Role of wetlands in environmental rescue assumes significance on account of specific lo[cal] uniqueness. Coastal w[etlands] absorb the first fury o[f] storms when they come and the forested wetlan[ds of] Sunderbans is an excellen[t example] in this context. This fore[st acts] as a barrier for the Calcut[ta] cyclone frequently comi[ng from] the Bay of Bengal, and thu[s deflects] it towards Midnapore d[istrict of] W.B. or Bangladesh. Th[e reason] seems to be very simp[le. The] comparatively heavier atm[osphere] typical of the Sunderban[s pushes] the cyclone towards low [pressure] region of either Midna[pore or] Bangladesh. It is really [amazing] how great service this wet[land has] been providing for the su[rvival of] the city of Calcutta.

Global Value

Wetlands may be si[gnificant] factors in the global c[ycles of] atmospheric nitrogen [and] carbondioxide. Today, to [increase] crop productivity, nitro[genous] fertilizers are being used i[n plenty.] The residual nitrogen [often] finds way into water [bodies] through run off water. Wat[erlogged] soils by virtue of their denit[rification] property return a part [of this] nitrogen to the atmosph[ere and] thus help maintain the [globally] available nitrogen balanc[e.]

Peatlands are 'sinks' fo[r carbon.] The conversion of these [to] agriculture changes the[m from] carbon sinks to carbon [sources] and releases carbon i[nto the] atmosphere. This proce[ss raises] questions of global [concern] because the planet is [already] threatened by increasing atmospheric carbondioxi[de.]

Management

Attitude towards wet[lands is] changing, but not fast eno[ugh. The] values of these environm[ents are] now being recognized and t[ranslated] into protection laws, re[gulations] and management plans [. In] developed countries, s[cientists,] engineers, sociologists, ec[onomists] and managers are h[ighly] specialists in wetland eco[logy and] wetland management.

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Housing– A Manageable Challenge

Deepak Razdan

BY RELEASING THE DRAFT on National Housing Policy in early June, the National Front Government fulfilled a major commitment contained in the Action Plan announced by the Prime Minister. Subsequently, four regional conferences of experts and professionals were organised to allow a nationwide debate on the document before its adoption as the final blueprint for action. During the process, the nation was relieved to learn the optimistic assessment of the Urban Development Minister, Mr Murasoli Maran, "I believe that housing for all is a manageable challenge, given the concerted efforts of the people, public and private sectors."

The new draft has followed an earlier policy document presented in the Parliament in May, 1988 which recognised the need for the policy to be reviewed periodically so that it could be dynamic enough to meet the emerging needs and demands of the socio-economic conditions, as well as the diverse needs of different regions in the country.

The present draft has, besides recognising housing as a basic human need, spelt out the daunting housing scenario of the country more vividly. The draft contains figures which bring out how investment in the sector has fallen over the years, and point to the inevitability of devising new investment strategies. The draft shows the poor availability of different traditional building materials and suggests the problem can be solved by adopting alternative materials which are cheaper and no less durable. To tackle the legal constraints, the draft indicates the possibility of Government amending the Urban Land Ceiling Act and rent control laws, and of enacting new laws like those permitting ownership of apartments etc. The new document envisages for the Government a role of the facilitator and creator of an environment in which individuals themselves can take initiatives to build their houses.

The new document has made special focus on the declining rate of investment in the housing sector and suggested various innovative methods by which individuals' savings could be tapped to give a boost to house construction. In terms of investment, the policy says, the problem seems to be staggering. If the goal of 'shelter for all' is to be achieved, the real investment in housing would have to be rasised by over 35 per cent each year.

The overall magnitude of the housing problem confronting the country was estimated for a span of 20 years from 1981 to 2001 to be 233 lakh dwelling units in terms of backlog and 638 lakh new dwelling units to meet the incremental housing needs of the growing population during the period. The total investment required during the period for both removing the backlog of housing needs upto 1981 and creation of new housing stock or additional rooms for the increased number of households, was estimated at Rs. 1,90,000 crore at constant prices based on 1985 cost, excluding investment on infrastructure and services. After excluding estimated capital formation over 1981-90, the estimated investment over 1991-2000 at 1985 prices would be about Rs. 1,40,000 crore.

The policy emphasises the immediate need to reverse the declining investment. It was only by stepping up the investment at once in the shelter sector and urban infrastructure and increasing it at a steady pace thereafter, that there can be any hope of a significant change in the housing situation. Out of the Rs 77,496 crore proposed for the housing sector during the Eighth Plan (1990-95), 10 per cent should be in the public sector. The share of financial insitutions and provident fund should go upto 20 per cent of the annual investment.

Housing Finance

Dwelling on the lack of financial resources, the policy says that surprisingly the rate of hosehold savings in the country was quite high. As per the estimates of the Central Statistical Organisation the urban savings in 1985-86 were Rs. 13,000 crore and the rural savings were Rs. 6,125 crore. There is, therefore, a considerable scope for capturing the potential savings through schemes linked to guaranted loans and access to legal shelter. The formal system covers only 20 per cent of the total financial needs of households. The sources of informal savings are seen to be cash and bank deposits, assets like jewellery, loans from friends and relatives and to a small proportion of funds from money lenders.

The Government plans to bring about appropriate changes in the approaches of the existing financial institutions so as to make them more responsive and accessible to households. The National Housing Bank (NHB) would be encouraged to conentrate on the promotion and regulation of housing finance institutions in the public an[illegible]

private sector, mobilisation of household savings, increasing the access of different income groups to loans for different shelter activities, increasing the reach of the poorer sections to housing loans, and to concentrate on refinancing the operations of financing institutions and cooperatives engaged in housing The Home Loan Account Scheme launched by the NHB with the intended objective of mobilising Rs. 1000 crore per annum from the household sector by attracting very small amounts which can be a potential source of housing finance. In the rural areas, where the bulk of the problem lies, the finanical needs of new construction and upgradation have to be built into the District Credit Plan and the operations of the rural cooperatives and Land Mortgage Banks.

Incentives

As declared by the Finance Minister in his Budget Speech for 1990-91, there was case for introducing a timebound scheme to promote the undeclared income and hidden wealth to be used for one or more social purposes such as slum clearance, building of houses for lower and middle income groups etc In the past also, various measures had been adopted to bring in black money through bearer bonds, capital gains bonds and Indira Vikas Patra The Government may float bonds and debentures, the proceeds of, which could be used entirely for housing the poor, provided the sources of funds invested in the bonds were not questioned The detailed proposals are being worked out to introduce the scheme shortly

Several fiscal measures are outlined by the Government which can be implemented to direct more funds towards housing The incentives under the laws relating to taxation of income, wealth and gift would be rationalised to channelise savings into housing finance institutions and promote investment in housing activity. In order to induce employers in the organised sector including industry, to provide housing for their employees, appropriate fiscal incentives would be extended The present tax system encourages diversion of investible resources into high income and luxury housing The high rate of return on luxury housing should be reduced by specific measures including withdrawal of existing tax concessions for owner occupied and rented luxury houses. Incentives would be given to promote the manufacture of new building materials and components produced out of agricultural, industrial and other wastes and those which substitute or reduce the use of scarce resources like wood and energy-intensive materials like iron, steel and cement

Giving a picture of the poor availability of the traditional building materials, the policy document said, the country would need to have an additional housing stock of 218 lakh units during the Eighth Plan period. This would require nearly 132 million tonnes of cement but the availability would be only about 115 million tonnes. Similarly, as against the requirement of about 15 million tonnes of steel, the availability would be a little over 11 million tonnes There would be a shortage of 54,898 million bricks and of 13 million cubic metres of timber This showed that if shelter was to be provided to all within a short time, the country would have to go in for newer building materials which could be developed through research and development efforts At present, there is an annual availability of 25 million tonnes of flyash, about three million tonnes of coal washery rejects, 25 million tonnes of rice husk and two million tonnes of red mud from aluminium plants Similarly, there is considerable availability of materials like jute stalk, bamboo, saw mill waste, groundnut shell and mine tailings.

Reshaping The Laws

It has been recognised that legal infirmities had come in the way of housing activity. A review of th Urban Land Ceiling Act had show that in its present shape, it ha frozen the landmarket, pushed u land prices, generated corruptio and had not achieved any of th social purposes for which it wa enacted. The policy says that re control laws would have to b amended to protect existin tenants from arbitrary evictio and provide periodic rent increase in line with cost of livin index. The Ministry is evaluatin the amended Delhi Rent Contr Act and has written to all Stat and Union Territories to consid the desirability of amending the laws on the lines of the Delhi Ac The policy recognises that a maj reason for withdrawal of vaca premises from the rental market i the difficulty faced by landlords i securing possession of the houses for self-occupation Th policy stresses the need f amending State Cooperativ Societies' Acts which were archai and were yet governing th functioning of the housin cooperatives also.

Norms

An interesting feature of th new document is that it not onl lays down minimum housin norms but also maximum norm In rural areas, the size of the pl should not be less than 85 squa metres but not more than 2(square metres. In urban areas th size of the plot should not be le than 25 square metres (which ca be reduced to 20 square metres i larger cities) but not more than 1 square metres. These norms ar however, proposed to be period cally reviewed and progressive improved.

Since much of the housi activity in rural areas depends o biomass, the strategy for housi in rural settlements is proposed t be based on regeneration an protection of the natural resour base, ensuring the access of th people to these resource strengthening and developi traditional building systems, skill

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Food Processing : Thrust Area For Export And Foreign Collaboration

M.K. Ghoshal

ACCORDING TO 1981 census about 525 million people or 77 per cent of the total population lived in 5.67 lakh Indian Villages. The rural economy revolves round agriculture which is the principal means of livelihood for nearly 85 per cent of the rural labour force. Agriculture, because of its seasonal character, fails to provide gainful employment on a continuous basis. Agricultural income is depressed on account of uneconomic holdings and low crop yields. The fate of agricultural labour is worse in terms of employment and income. As a result, there is large scale unemployment and under-employment. Since employment and income are closely related, a large number of rural people— about 40 per cent remain below the poverty line, reflecting insufficient employment avenues for growing population. The emerging situation underlines the need to develop subsidiary activities allied to agriculture as also agro-based industries.

The development profile of the rural sector requires to be integrated with the local resources. The lead might come from the regional cropping pattern getting lined with agro-climatic conditions. Although significant break-through has been achieved by Green Revolution, the same is still confined to a few crops in northern states of Punjab and Haryana. However, most of the farmers are unable to take full advantage of the significant growth in agricultural production including foodgrains, fruits and vegetables because of infrastructure and organisational constraints. The highly perishable nature of fruits and vegetables adds to their vulnerability despite rural electrification and road-cum-rail transport net work. According to reliable estimates, nearly 30 per cent of fruits and vegetables valued around Rs. 3000 crores are wasted every year for lack of adequate processing, preservation and marketing facilities. The magnitude of production loss can be prevented or at least minimised by improving post-harvest technology/handling besides forging direct linkages with the processors or marketing outlets. Our fruit and vegetable processing industry functions at 38 per cent of capacity utilisation on account of seasonal availability of raw materials.

The problem of the farmer and that of the processing industry had been engaging the attention of the Union Government which took a pioneering step by creating a separate Ministry of Food Processing Industries in July 1988. The new Ministry was first of its kind in the developing countries with focus on intergrating the interest of the farmer and the industry to promote better utilisation of agricultural commodities, greater value addition to rural produce, generation of massive employment in rural areas, enhancement of the net level of rural incomes and induction of modern technology in food processing. Another specific objective of the Ministry was to convert the large scale wastages of fruits and vegetables into useful food items, thereby augmenting the nutritional standard of people's diet. Promoting agro-based industrialisation in rural areas would also help to absorb such women and youth in gainful employment near their home steads as would have migrated t urban areas in search of employ ment.

Though consumer good industry in general is accorded low priority, food processing ha acquired the distinction of a thrus area of development for exports a well as domestic consumption The policy guidelines provide fo entry of large houses as well a foreign collaboration. Accordingly all food processing industrie other than milk foods, malte foods and flour excluding item reserved for small scale sector an all items of packaging for foo processing industries excludin the items reserved for small scal sector have been placed i Appendix-I industries which ar open to MRTP and FERA companie Similarly, to achieve economies c scale and to obtain higher productio levels the facility of broad bandin has been extended to all fruit an vegetable products and all processe foods excluding the items reserve for the small scale sector. number of items of food processin equipment, which are n indigenously available, have bee placed under OGL on concession rates of customs duty.

Among the thrust areas identifie for export promotion are processe foods including fruits and vegetabl as also marine products especial in value added forms. Technolo transfer and foreign investme are permitted. The normal 4 limit of foreign equity is relax with higher export obligatio 100% export oriented units in outside export processing zo and engaged in food process can also be 100% foreign own

Foreign collaborations are being allowed to utilise cooperatives of farmer producers for the purpose of provision of raw materials and eventually 100% export. In deep sea fishing, joint ventures will be permitted with established foreign companies.

Fiscal incentives have also been extended to food processing and packaging under the central budget for 1989-90. It is also a priority sector for bank finance.

The Indian agro-food industry is given access to imported state-of-the -art technology both for capital equipments and processed technology. This industry is also encouraged to set up joint ventures abroad. These joint ventures may export our semi-processed food, process them further and market them in those countries.

The number of foreign collaborations in food processing totalled 30 during the five year period 1982 to 1986, giving an average of 6 approvals a year Another 16 collaborations were approved in 1987, 11 in 1988 and 15 in 1989. The participating foreign companies are from USA, UK, FRG, Japan, Switzerland, France, Holland, Sweden, Greece, Mexico and Singapore. The collaborative projects envisage production of a wide range of food products including snack foods, breakfast cereals, health food, extruded foods, beverages, processed fruits, vegetable products, marine produets and deep sea fishing

Food processing industry has not made much headway inspite of diversification into manufacture of ready-to-eat extruded food, soya bean products, cocoa products, vegetable based high protein foods and processed fruits and vegetables. Its prospects are linked with future demand production environment at home and abroad. On the domestic front much will depend on the changing consmer tastes/life styles in the course of urbanisation and the industry's response to the emerging situation. To push up exports and to augment foreign exchange earnings Indian industry should have a competitive edge in terms of quality and price.

The 35 Point Action Plan of the Government has inter alia provided for an allocation of at-least 50 per cent of investible resources in the agricultural and rural sectors of the economy beginning from 1990-91 annual plan. Processing of fruits and vegetables could lend strong support to the Government's proclaimed task of poverty alleviation and employment generation through rural development and promotion of small industries At present hardly 0.3 per cent of the country's fruits and vegetables production is processed for domestic consumption and export The processed production consists of Jams, jellies, fruit juices/pulps, ready-to serve fruit beverages, pickles and dehydrated vegetables Production of these items has gone up from 1.4 lakh tonnes in 1984 to 1.8 lakh tonnes in 1986, of which about one-third was exported Development of industry by integration of fruit and vegetable production with processing and marketing would make a valuable contribution to strengthen the rural economy in terms of output, employment and income ☐

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India, the status of wetland science is alarmingly poor. So little is known about the structure and function of these environments that the approach for protection appears non-existent. Successful management demands much more basic information about how wetlands function. In view of this, it is therefore suggested that our decision-makers and planners should draw plans to identify the areas of future research thrust in wetland science and initiate interdisciplinary studies involving diverse wetland types. To achieve real success, wetland science must be tagged with the existing educational curricula. Raising people's awareness of wetlands and convincing them of their real value will be another effective way of conservation. And scientists have a clear responsibility in this regard- a responsibility to highlight just how important wetlands, are and in way which non-scientists can udnerstand. ☐

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technologies and materials and where unavoidble, ensuring the rehabilitation of people uprooted due to national projects.

The four regional conferences recommended various steps to ease the housing shortages. Among them was a suggestion for tapping black money to counter shortage of housing finance. It was suggested that the Reserve Bank of India should treat housing as priority sector. Emphasis should be more on reducing the cost of housing by various steps like better land utilisation, reduced cost of services, higher densities, promotion of low cost materials and encouragement to incremental construction by individuals. It is agreed that the public sector should continue to provide housing for the poorest sections and disadvantaged groups who could not afford to secure land or houses under the present system

Voluntary Agencies and Rural Uplift

Dr. D.K. Ghosh

IN INDIA, THERE IS the tradition of rendering voluntary service for the uplift of under-privileged and weaker sections of society. This aspect of voluntarism in development process in rural areas is testified by the works and teachings of Swami Vivekananda, Rabindra Nath Tagore and Mahatma Gandhi. The basic philosophy behind voluntarism is: "The life of the community pervades the life of the individal, the happiness of the community is conducive to the happiness of the individual, an individual cannot at all exist without his community. This eternal truth is the basis of life" In the post Independence era, there was a significant increase in the number of voluntary agencies with the launching of Community Development Programme. C.D.P. envisaged voluntary participation of people in rural development works in the form of Shramadan. In fact the programme was designed to ensure economic and social progress for the whole community.

If we look back, it can be seen that till the Sixth Five Year Plan, voluntary organisations were considered charity and welfare activity organisations. The Seventh Five Year Plan sought an operational arrangement for promotion of voluntary efforts primarily in the field of rural development. Voluntary organisations were given the "freedom to plan their own schemes and follow methodology they think best to tackle poverty in villages they are working in." Stress was laid on professionalising voluntarism. The voluntary organisations were urged to mobilise locally available human and financial resources, identify the poor farmers, rural artisans, Scheduled Castes and Scheduled Tribes, agricultural labourers and bonded labourers, upgrade their skills and give them the tools to attain economic self-reliance. For achieving better impact the Seventh Plan document emphasised that there should be mutual trust and understanding between Government and voluntary agencies at the village level. But experience shows that mutual trust it yet to take shape.

For assessing the involvement of voluntary organisations in rural development works, a study was conducted in Nadia District, West Bengal. In the state Panchayati Raj institutions have deep roots in villages and are involved in all walks of development works in villages. Panchayat members (village and block level) were considered as the respondents. Fifty of them were taken as samples for the present study. The questions were concerned with, (a) whether involvement of voluntary organinsations are helpful, (b) Whether their involvement is likely to jeopardise the mportance of panchayats, (c) the form of relatioship with voluntary organisations and (d) the capability of voluntary organisations. Table 1 to 4 carry the response.

It can be seen that out of 20 Gram Panchayat Pradhans, 15 were of the view that involvement of voluntary organisations in rural development works will not be helpful, whereas out of 7 Savapatis of Panchayat samitis (at Block level) 4 supported this view. So far as officials at block level are concerned, out of 23 samples 9 responded this way. Over 50 per cent of the respondents thought that involvement of voluntary organisations in rural development works may not be helpful.

Whether involvement of voluntary organisations in rural development programmes will jeopardise the importance of Panchayat Bodies.

It is observed that out of 50 samples, 39 respondents i.e. 78 per cent, believed involvement of voluntary organisations in rural development affairs is sure to jeopardise the importance of Panchayati Raj institutions.

The Panchayat representatives feel that if voluntary organisations are involved in the process of development, their relationship with these organisations will be competitive.

Regarding capability of voluntary organisations to undertake development works, 24 out of 50 thought they are partially capable and 23 maintained that they are not capable at all for undertaking developmental works.

Mutual Distrust

In fact these experiences are nothing new as traditionally "rural development bureaucracy usually does not like the development of autonomous institutions,... the majority of voluntary agencies, depending mainly on Government finance are simply extensions of the Government bureaucracy. If they have not been captured by bureaucracy, they have been captured by the rural oligarchy, the local politicians and/or criminals. In view of these hard facts of life, the theoretically conceived advantages of the growth of a voluntary sector do not materialise except in a few isolated pockets." The air of suspicion and mutual distrust permeate the realtionship between the governmental officials mainly at lower

level of hierarchy (implementation level) and voluntary organisations at local level. The State machinery has many limitations to ensure the welfare of all its people. It has been increasingly felt that organised forms of popular participation make development stable and inculcates a feeling of community belonging though which only the whole process can be revitalised. Properly organised voluntary efforts may go a long way towards augmenting the facilities available to the community for helping the weakest and the most needy. But question is how far these organisations be allowed to play their role. On this depends to a great extent the success or failure of rural development plans as their partnership would help linking social action with state action.

In this connection the activities and experiences of some reputed voluntary organisations deserve mention. The Society for Education Welfare and Action Rural (SEWA) working in the field of community development is presently engaged in health care. SEWA is inspired by the philosophy that God can best be worshipped through service of the poor, the wretched, the downtrodden. The organisation enthuses people for working on community basis. A variety of activities from remedial to developmental have been undertaken by this organisation.

Social work and Research Centre at Tilonia, Rajasthan is primarily a group of professionals trying to provide technical and managerial solutions to the problems of poverty and injustice. The organisation is offering professional advice and guidance to farmers in health and hygiene, agricultural production, engineering and marketing. The organisation has been experimenting with its unique integrated approach to rural development.

The Asian Institute of Rural Development, Bangalore is engaged in rural development through development of human resources including training programme and transfer of technology. Bharatiya Agro Industries Foundation of Urali Kanchan in Pune district of Maharashtra has, from initiated schemes for increasing milk production through cross breeding programme. In Nadia district, West Bengal, Usha Gram Trust, a voluntary organisation based on the ideals of Sri Aurobindo is mainly devoted to human resource development through training in different activities of rural economy Recently, the Trust constructed two village link roads, assisted by the Council for advancement of People's Action and Rural Technology (CAPART).

Table 1

Whether involvement of voluntary organisation in rural development will be helpful

Status of respondent	*Yes*	*No*	*Not responded*	*Total samples*
Pradhan Gram Panchayats	3	15	2	20
Savapati Panchayat Samitis	2	1	1	7
Block Development Officers	5	2	X	7
Village level workers	6	7	3	16
Total	16	28	6	50

Table 2

Status of respondent	*yes*	*No*	*Not responded*	*Total Samples*
Pradhan Gram Panchayats	16	2	2	20
Savapati Panchayat Samitis	7	X	X	7
Block Development Officers	4	2	1	7
Village	12	3	1	16
Total	39	7	4	50

Table 3

Status of respondents	*Nature of relation ship*			*Total*
	Cordial	*Cooperative*	*Competitive*	*Samples*
Pradhan Gram Panchayat	2	5	13	20
Savapati Panchayat Samitis	1	3	3	7
Block Development Officers	1	2	4	7
Village level workers	3	4	9	16
Total	7	14	29	50

Table 4

Capability of voluntary organisations

Status of respondents	*fully capable to undertake development works*	*Partially capable for under taking development works*	*Not capable at all*	*Not responded*
Pradhan Gram Panchayats	X	5	13	2
Savapati Panchayat Samitis	X	2	4	1
Block Developmenti Officers	X	6	1	X
Village level workers	X	11	5	X
Total	X	24	23	23

Appropriate Strategy

A close look at the working of various voluntary organisations indicates that their involvement in the process of rural development is one of the appropriate strategies for successful implementation of various poverty alleviation programmes. In the Eighth Five Year Plan, their role should be duly recognised and they should be entrusted with greater responsibilities for building up community collective farming, community biogas, social forestry

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Eliminating An Inhuman Practice

Bhabatosh Chakraborty

CONVINCED THAT THE inhuman ractice of carrying nightsoil and ilth physically by the scavengers contribute considerably to perpetuate the practice of ntouchability, Government has embarked on an ambitious scheme o convert all tradional dry latrines nto waterborne latrines. The cheme also has provisions for roviding new wet latrines to the ublic at highly subsidised rates nd by rehabilitating scavengers y offering them alternative jobs.

ocial Discrimination

The inhuman practice of carrying ightsoil in baskets and buckets on ne's head is still prevalent in any parts of the country not only preading insanitation but also erpetuating social discrimination. lthough no concrete data is vailable regarding the exact umber of dry latrines in the ountry and the number of cavengers involved, it is roughly timated that there are about 53 kh dry latrines in the country. oreover, about 30 per cent of the ban households do not have any trine facility at all. During the xth and Seventh Five Year Plans, e programme was taken up only selective basis in small and edium towns.

Since 1980-81 about 3.17 lakh dry rines had been converted into ater-borne latrines in 226 towns 19 States and about 10,200 vengers liberated and rehabi- ated. The new Centrally onsored scheme will speed up the process of eliminating this inhuman practice from the country. Under the scheme, the Union Ministry provides financial assistance to State Governments and Union Territories on 50:50 grant basis, for the conversion of dry latrines into sanitary ones on the condition that all the displaced scavengers and their dependents would be rehabilitated in alternative employment.

The equal share of 50 per cent has been provided by the States and Union Territories either from their State budget or through loans from HUDCO. The Government provides 50 per cent as subsidy and 50 per cent of the cost as loan to householders for conversion of dry latrines to implement the scheme at the municipal level. Moreover, the States and Union Territories have been asked by the Centre to release 10 per cent of the Special Central Assistance on the income generating programme reserved for vulnerable groups like sweepers, scavengers, bonded labour and de-notified, nomadic and semi-nomadic tribes

An amount of Rs. 42.97 crore had been released by the Union Welfare Ministry to the States and Union Territories till March 1989, as Central share for conversion of dry latrines. Rs. 10 crore was released in 1989-90 for conversion of dry latrines in 264 towns. Under an Action Plan, a provision of Rs. 23 crore has been made for this scheme to cover 500 towns during 1990-91.

Training Programme

The Scheduled Castes Development Corporations in various States are playing a vital role in the rehabilitation of the displaced scavengers. They are providing margin money loan, subsidy and bank loan for rehabilitating the scavengers in various trades and occupations. Mahatma Phule Scheduled Castes Development Corporation, Bombay has also set up a training centre in Thane District in Maharashtra for training of the liberated scavengers.

The contents of the training programme for scavengers and sweepers, however, vary from State to State depending upon the availability of trade and occupation and avenue for employment. For example, the Bihar Government is providing training to the displaced scavengers in selected trades like motor mechanism, electrical repairing, motor driving, leather work, cane work, shorthand and typing. Similarly, States like Madhya Pradesh and Rajasthan are getting the scavengers trained through the industrial training institutes.

From the year 1981-82, more than 15 States have started schemes pertaining to the liberation of scavengers. In 1981-82 Maharashtra, Uttar Pradesh, Tamil Nadu, Andhra Pradesh and Bihar started the scheme in about 240 small and medium towns. Madhya Pradesh topped the scale by introducing it in 98 towns. ■

Funds Management In Regiona Rural Banks: A Case Study

Dr. Noorbasha Abdul and M. Jyothi

Regional Rural Banks have a vital role in the provision of credit to the rural poor for self-employment. The authors speak of the areas of concern in the functioning of RRBs and call for a more cautious approach in the management of funds by RRBs in general and the loss-making ones in particular. A case study of Chaitnya Grameena Bank, Tenali, AP, is an indicator in this direction.

THERE HAS BEEN A growing realisation of the significance of Regional Rural Banks (RRBs) in the rural credit system as the most potential agencies to promote the cause of the rural poor. However, it is unfortunate that RRBs in general are plagued with deceleration in their viability and profitability. Latest statistics show that 196 RRBs have shown a total loss of Rs. 193 crores, and most of them have eaten away their share capital long back. This pathetic situation, calls for a more cautious and efficient management of funds by RRBs in general and the loss-making RRBs in particular.

An appraisal of management of funds in Chaitanya Grameena Bank (CGB), Tenali, Andhra Pradesh has been attempted, as a case study. The CGB (refferred to as 'the Bank'), was opened in 1983, to cover Guntur district of the State and has consistently been yielding losses till to date, without showing any positive signs of recovery in the near future. A detailed analysis of the trend in the mobilisation and deployment of funds of the Bank is attempted in this article. Sources of funds for the purpose of this study are confined to only deposits and borrowings and use of funds to 'advances' only.

A break-up of the liabilities of the Bank shows that the borrowings of the Bank have outpaced deposits. It can be observed from its data that borrowings multiplied by 20.2 times, while deposits went up by only 15 times.

While the value of the total assets has gone up by 14.3 times, advances and cash assets of the Bank rose up by 26.6 times and 8.6 times respectively, indicating better utilisation of working funds towards the provision of advances to the weaker sections. It is indeed heartening that the advances which were just 41.5 per cent of the total assets in 1983 was 77 per cent at the end of Sept. 1989.

Smaller Borrowings

The contribution of NABARD to the Bank's total borrwings is picking up, reducing the burden on the sponsor Bank. While the Sponsor Bank and NABARD have contributed to the borrowings of the Bank in 45:55 ratio in 1983, it rose to 24:76 at the end of September 1989. It is found that the borrowings from the Sponsor Bank was about 35 per cent of the advances in 1983, which came down to just 14 in 1989. At the same time, borrowings form NABARD Slightly picked up to 48 per cent on the advances in 1987, which again delcined to 44 per cent in 1989. So borrowings of the Bank occupied only 58.6 per cent of the advances at the end of Sept. 1989, (78 per cent in 1983). It is below the expected targets. The report of the Working Group on RRBs (1986), has observed:

"The sponsor banks have not met their full share in the refinance provided to the RRBs. Their average share at the end of June 1985 was 16 per cent in the total loans extended to the RRBs as against their expected share of 30 per cent. In the case of one sponsor bank, the percentage was as low as one per cent. Generally speaking the percentage was less than half of the expected share in the case of many sponsor banks"

Only in the first two years of the study period have the borrowings from the sponsor bank exceeded 30 per cent of the Bank's total advances. Thereafter the trend indicated that thee is a strong possibility of the percentage further falling even below 15 per cent.

The proportion of balances to deposits fell from 60.5 in 1983 to 44.7 in 1988 and 32.7 in 1989. Slump in this ratio indicates the Bank's ability to deploy most of its deposits towards advances by reducing its investment in the balances with other banks. At the end of Sept 1989, NABARD and Sponsor Bank were sharing the Bank's balances in 16:84 ratio.

At the all India level, most of the profit-making RRBs used to maintain huge amounts of balances with other banks, compared to the

loss-making counterparts. One of the recent studies of selected RRBs at the national level showed that their balances with other Banks as percentage of their deposits were more than 76 per cent for profit-making Banks and less than 62 per cent in the case of loss-making banks. The rationale behind nurturing this sort of culture by RRBs in their financial administration is purely commercial rather than social consideration.

While the percentage of balances with NABARD to the borrowings from it has been at a very low ebb, the percentage of balances with sponsor bank to the borrowings from it worked out to a three-digit figure. For example, these percentages relating to NABARD and Sponsor Bank were 30 6 and 150.2 respectively in 1983 and 7.46 and 150.27 in 1989. This tendency clearly indicates that while the Bank is getting more than NABARD, it is depositing more with its sponsor bank.

Findings

The above findings of the Study Bank may be compared with those which are worked out by the RRBs at the national level as on 30th December, 1986. Some of them are·

The borrowings of the Bank were constituted, 24 per cent and 76 per cent respectively by Sponsor Bank and NABARD as in 1989. At the all India level, the respective percentage were 24 and 68 for profit-making RRBs and 28 and 70 in the case of loss-making RRBs.

- The borrwoings from sponsor bank and NABARD constituted 14 per cent and 44 per cent of total advances in 1989. At the All India level, the respective percentages were 13.2 and 37.1 for profit-making RRBs and in the case of loss-making RRBs 14 per cent and 35.5 per cent.

The total balances to total deposits of the bank constituted 32.7 per cent at the end of Sept. 1989. However, the All India average for profit-making RRBs showed it at 54 per cent and 42 per cent in the case of loss-making RRBs.

The balances with sponsor bank to total desposits of the Bank constitued only 15 per cent at the end of Sept. 1989. However, these percentage were 51.43 and 33 65 for profit-making RRBs and loss-making RRBs respectively.

The balances with Sponsor Bank alone accounted for more than 84 percent at the end of Sept. India level however, the profit-makings RRBs showed 96 per cent while 79.2 per cent was worked out by the loss-making RRBs.

It is found out from an analysis of the viability of all the RRBs in India as at the end of December, 1986 that one uniform reason for incurring loss was the low level of business and non-judicious allocation of resources and borrowings.

Composition of Deposits

The earlier analysis on the liabilities of the Bank during the study period has revealed that the Bank was depending more on borrowings It was also seen that the growth rate of borrowings far outweighed that of the deposits. As a logical step, it is relevant to analyse the composition of the deposits to assess the respective degree of influence that the term and savings deposits played.

While the savings deposits constituted the higher segment of the total deposits upto 1986, it was the term deposit component which had higher share of total deposits since 1987. For example, in 1989, of the total deposits of the Bank, term deposits constituted more than 62 per cent.

While the average rate of interest on term deposits worked out to 9.90 per cent, the average rate on savings deposits was 3.76 per cent at the end of 1988. When these percentages were compared with the respective actual rates of interest offered by the Bank, the former happened to be lower than the latter through-out the study period.

While the average rate of interest on term deposits constituted less than 85 per cent in the actual rate in 1983, it went upto about 99 per cent in 1988, thus leaving a margin of 15 per cent and one per cent respectively to the Bank. Similarly, the average rates of interest on savings deposits also presented far lower values. The data revealed that while this percentage has been at the lowest level of 38 in 1985, it increased to a significant level of more than 68 per cent in 1988, thus providing savings in the interest rate to the tune of 62 per cent and 32 per cent respectively.

Yield Rate on Advances

Even though the growth of advances of a Bank presents an attractive record, the yield rate on advance should also be reasonable and remunerative. With this end in view, the yield rates on advances of the Bank under study, are computed and furnished in the analysis data, which in turn discloses one significant fact that the Bank is losing its yield rate on advances. The yield rate of the Bank declined from 14.39 in 1984 to just 10 31 in 1989. This falling yield rate suggests the declining efficiency of advances in terms of interest receipts. The phenomenon may be attributed to the fact that the quantum of advances is mounting up rapidly and dis-proportionately compared to the interest thereon. This is one of the most basic reasons for the losses of the Bank.

A bird's eye view of the component-wise information reveals that the ISB Industries, Services and Business sector has been consistently yielding more than proportionate interest to its advances, while the Short Term Loans category was continuously showing a lower proportion of

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Punjab Agriculture: Scope of Energy Conservation

Amarjit Singh

Energy audit of wheat and paddy Crops in Punjab has shown that these are consuming more energy, more non-renewable at that, leading to cost escalation. In this study, the author notes that there is significant scope for effecting economy. He underlines the need for creating better awareness and streng-thening the extension net-work for the purpose.

IN THE AGRICULTURAL sector particularly in the green revolution areas, with the rising trend in utilisation of hybrid seed, intensive irrigation, larger doses of chemicals, fertilizers, insecticides, pesticides and increasing level of machanisation, the corresponding input of energy has increased manifold. To further elaborate this point, it takes 60,000 MT of energy to produce one tonne of nitrogen, 80,000 MT of energy to produce one tonne of farm equipment and 36,000 MT of energy to lift one hectare metre of water from moderate depths. Similarly, to produce other agricultural inputs substantial amounts of energy are required.

In Punjab, during green revolution period, i.e. 1970-71 to 1987-88 the number of tubewells had increased from 1.92 lakhs to over 6.83 lakhs. Similarly, the number of tractors reached upto 2,39,121 in 1987-88 from 50,664 in 1970-71. The consumption of chemical fertilizers went up from 213 thousands nutrient tonnes to 1,112 thousands nutrient tonnes during this period. Likewise net area irrigated increased from 71 per cent to 88 per cent. Electricity consumption in agriculture went up and accounted for 41 per cent of the total electricity consumption of the State.

Questions

In the light of above given situation a few questions arise. Whether the Punjab agriculture has really become energy intensive? What are the shifts in energy consumption pattern and what are the remedial measures which can be taken for energy conservation in agriculture? In this paper an attempt has been made to study the structural shifts in energy consumption for producing wheat and paddy, the principal and energy intensive crops of Punjab.

So far the time series data of energy consumption for various crops are not available. The studies conducted in the past were either village level studies or presented only a particular area. Data used in this paper have been taken from two sources. For the year 1973-74 the energy required to produce wheat and paddy has been worked out from the farm management studies conducted by Department of Economics and Sociology, Punjab Agricultural University (P.A.U.) Ludhiana. In these studies the physical quantities of various inputs per hectare have been given. These physical quantities have been converted into energy units i.e. mega joules. For the year 1984-85 the data have been taken from the study conducted by Department of Farm Power and Machinery, P.A.U. Ludhiana. So, the two samples on which these studies were based are different and therefore not strictly comparable. However, due to the lack of comparable data these can be used to have a crude estimate of trend, and structural shifts in energy consumption pattern in agriculture.

Wheat

The source-wise energy requirement for wheat production has been shown in Table 1. The total energy input from various sources was to the tune of 14,910 MT in 1973-74 and increased to 18,762 MT in 1984-85 accounting for 25.84 per cent increase during this period. The maximum increase was noticed in the energy from fertilizers which increased from 4,981 per hectare to 8,145 MT per hectare. The contribution of energy from fertilizers increased from 33 per cent to 43 per cent in the total energy input. Though the energy input from diesel and electricity increased in absolute terms yet the percentage share in total energy input remained almost same. There was a sharp decline in the contribution of human and animal energy both in absolute terms and in percentage. The share of human energy in the total energy input was 7.09 per cent in 1973-74 which declined to 4.92 per cent in 1984-85. Likewise, the share of animal energy declined from 6.75 per cent to mere 1.47 per cent. The share of machinery in the total energy input increased from 0.85 per cent to 1.56 per cent during the study period. Overall, the input in the form of renewable energy declined from 3,618 MT per hectare to 2,650 MT per hectare. The percentage share of renewable energy decelerated from 24.27 per cent to

14.12 per cent. In contrast, the percentage share of non-renewable energy increased.

Though energy consumption per unit of area increased, the average energy input per kilogramme of wheat declined from 6.07 MT to 4.48 MT during 1973-74 and 1984-85, accounting for 27 per cent decline as shown in Table 2. Here, the decline noticed was more sharp in case of renewable energy, i.e. 57 per cent decline as compared to 16 per cent decline in non-renewable energy input. Thus, the above facts clearly show that the conversion efficiency of energy into output have increased over time and shift has also been noticed from renewable to non-renewable commercial energy.

Paddy

Table 1 shows that total energy input to the paddy crop was 21,596 MT per hectare in 1973-74 which increased to 33,410 MT per hectare in 1984-85. Increased energy inputs from diesel and fertilizers were mainly responsible for this increase. Similarly, energy from electricity, chemicals and machinery witnessed a substantial increase. Like wheat, the share of renewable energy came down from 17 per cent to 14 per cent and share of non-renewable energy increased from 83 per cent to 86 per cent in the total energy input. The analysis of energy input per unit of grain production showed that there was an increase in energy input per unit of grain production. The energy required to produce one kilogramme of paddy was 5.31 MT which increased to 5.86 MT during the study period. Interestingly, though the total energy input per unit of grain production increased, the renewable energy input per unit of grain production decreased from 0.91 MT to 0.84 MT. Overall, paddy production became more energy intensive.

Table 1

Source-wise energy input during 1973-74 and 1984-85 (MT/ha)

Source	*crop*	*Wheat*		*Paddy*
	1973-74	*1984-85*	*1973-74*	*1984-85*
Human	1057	923	1697	2158
	(7.09)	(4 92)	(7 86)	(6.46)
Animal	1007	276	907	349
	(6 75)	(1 47)	(4 20)	(1.04)
Diesel	4366	5142	5076	9789
	(29.28)	(27.41)	(23.50)	(29.30)
Electricity	1799	2398	7919	•9375
	(12.07)	(12 78)	(36.67)	(28 06)
Seed	1210	1411	630	638
	(8 12)	(7 52)	(2 92)	(1 91)
FYM	344	40	466	1657
	(2 31)	(0 21)	(2.16)	(4.96)
Fertilizers	4981	8145	4673	8600
	(33 41)	(43 41)	(21.64)	(25 74)
Chemicals	20	134	27	466
	(0 13)	(0 71)	(0.13)	(1.39)
Machinery	126	293	201	378
	(0 85)	(1 56)	(0.93)	(1 13)
Total	14910	18762	21596	33410
	(100 00)	(100 00)	(100 00)	(100.00)
Renewable	2618	2650	3700	4802
	(24 27)	(14.12)	(17 13)	(14 37)
Non-Renewable	11292	16112	17896	28608
	(75 73)	(85 88)	(82.87)	(85.63)

Table 2

Energy Requirement to produce a unit of output

	Wheat			*Paddy*		
	1973-74	*1984-85*	*% Increase/decrease*	*1973-74*	*1984-85*	*% increase /decrease*
Total Energy Input (MT/ha)	14910	18762	25.84	21596	33410	54.70
Yield of the Crop (Kg)	2458	4183	70.00	4065	5696	40.12
Average Energy input (Kg)	6.07	4 48	-26 19	5 31	5 86	10.36
Renewable Energy input (MT/Kg)	3618	2650	-26 75	3700	4802	29.78
Average renewable energy input/Kg (MT)	1 47	0.63	-57 14	0.91	0.84	-7 69
Non-renewable energy input (MT/ha)	11292	16112	42 68	17896	28602	59.82
Average non-renewable energy input kg	4.59	3 85	16.12	4.40	5.02	14 09

Studies on energy conservation

It is clear from the energy audit of the two main crops of Punjab that energy intensity in Punjab agriculture has increased and non-renewable commercial energy has replaced the renewable energy to a significant extent. This has resulted in the escalation of cost of production in agriculture. So, there is a need to look into the possibilities of energy conservation or saving without affecting agricultural productivity. Research is on to develop the technologies for energy conservation and very encouraging results are coming out. Results of some of the studies are given below.

Vyas and others conducted study for village Hambran of Punjab to work out the possibilities of energy conservation by waste and residue recycling. The study revealed that with the proper recycling of 8,500 tonnes of biomass available in a village there can be saving of 3,442 GJ of commercial energy and the farmers can also save Rs. 2.86 lakhs which they have

to spend to purchase the **commercial inputs.**

In Punjab, as mentioned earlier *the number of tubewells are* increasing at a very fast rate but these are being operated at a lower level of efficiency. Sondhi and others found that with slight improvement in the functioning of tubewell system there can be a saving of 175 million KWH of electric energy of Rs. 21 crore and 1,16,000 KL of diesel oil worth Rs. 414 crore per year in Punjab. Similar results have been obtained by improving the efficiency of other farm implements and machinery

The flow of water in Katcha channels cause immense loss of water. According to a study 30-40 per cent of water losses are only due to katcha linings. Sandhu tried an alternative pipeline system and found that these losses can be brought down to a very large extent and the capital cost incurred on pipelining can be recovered in eight years.

Other Studies

Similarly, there are many other studies which have focussed upon energy saving in agriculture production but the measures suggested in these studies are yet to be adopted by the farmers. This has been due to several reasons. Firstly, the farmers are not aware of the future implications of energy intensive agriculture which they will have to face individually or collectively such as ***scarcity of energy which may further increase energy prices, environmental pollution etc. Secondly, the capital costs of improving efficiency of machinery* and water conservation are quite high which is beyond the reach of majority of the farmers. Thirdly, the farmers will adopt only those** techniques having economic **advantage. Many techniques sugges**ted for energy conservation does not fulfil this condition. Fourthly, proper recycling technologies for crop biomass are yet to be developed. For example, the time between harvesting and sowing of crops has been narrowed down and the farmer has no alternative except burning the available biomass especially after the harvesting of crop by combine harvesters. But for saving energy this biomass is needed to be recycled in the soil. Fifthly, the alternative technologies developed for energy conservation should simplify the farm work. The technologies based on commerical energy have considerably simplified and eased the farm work. So the farmers will be reluctant to adopt that technology which complicates the farm work

Suggestions

Keeping in view the above given obstacles following measures are suggested to give a boost to the energy conservation and to reverse the trend which have increased the dependence on commercial energy.

- ***The awareness should* be cr *among the farmers* about the *run implications of* en *intensive agriculture.* Exten services and the means of n communication can be used this purpose.**

- Adequate credit facilities sho be provided for improv

  efficiency of machinery and popularising the means of w conservation.

- Benefit-cost analysis fr farmer's angle should carried out before recommend the technology and the resea efforts should be directed bring down the fixed a operational costs.

  Technology for recycling biomass other than dung sho also be developed.

- While developing technol due attention should be paic the work simplification asp

  Lastly, a study on large scal required to find out the shifts energy consumption patte covering different crops a various agro-climatic zones the Punjab State

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interest to its advances. While the ISB category which accounted for only 9.0 per cent of the total advances in 1989, contributed about 20 per cent to the interest receipts of the Bank, the STL category though accounted for about 70 per cent of total advances, contributed only 57 per cent of the interest receipts. The fluctuations of interest in Agriculture and Allied Activities category, however were due to the conversion of crop loans, which postponed the interest receipts of 1986 to 1987. It is obvious from the above analysis that the investment of advances on ISB category is more profitable compared to the other sectors.

In sum, the Bank under reference is facing serious crisis on the viability front The management of inflow of funds especially the deposits and borrowings a outflow towards advances pres a mixed record of performan The Bank has to go in for a m cautious and efficient mana ment of mobilisation and depl ment of funds, if the present tre is to be reversed. □

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mpact of Dryland Development Programme on Cropping Pattern-A Case Study

T. Narasimha Reddy, H.G. Shankara Murthy and H.S. Vijayakumar

Watershed technology envisages, among other things, shift in the cultivated area, from less remunerative crops to high-yielding ones. Such a change in the style of land utilisation is designed to improve the level of income and employment in the watershed areas. The authors have made an earnest attempt to analyse how far the Dryland Farming Development Programme influenced the cropping pattern in Bijapur District of Karnataka. Their observations.

CONSERVATION OF SOIL and water is a futile exercise unless it is put to productive use. So, there is need for changing the cropping pattern and shifting to new varieties of crops to meet the excess cost incurred in land development activities. In the Seventh Five Year Plan the Watershed Development Programme was introduced not only to develop the land but also bring about changes in crop production activities.

Watershed technology is expected to bring about shifts in cultivated area from less remunerative crops to high-yielding crops. Such a change in the pattern of land utilization seeks to improve the level of income and employment in the watershed areas through greater integration between various sectors of the economy of the inhabitants residing in the areas.

In this article, an attempt has been made to analyse how far the dryland farming development programme influenced the cropping pattern in a typical dry farming Bijapur district in Karnataka where continuous efforts have been made in this direction.

Methodology

To analyse the objective of the study, a multi-stage sampling procedure was adopted. At the initial stage Bijapur district was selected because of its drought prone character with wide fluctuations in annual rainfall. In the second stage specific watersheds were selected based on their importance. It was decided to evaluate the impact of the watersheds which were taken up under Drought Prone Areas Programme (DPAP). Chandakavate watershed was selected to provide guidelines for achieving the desired objectives with minimum friction betweer different categories of functionaries controlling the diverse fields of activities. The watershed at Yarnal was chosen as it was sponsored by the University of Agricultural Sciences, Dharwad.

After identifying the watersheds some villages were selected from each watershed. In the Chandakavate watershed, four villages (20 per cent of total) were selected where the programme was implemented in the year 1985. The watershed at Yarnal covered only one village and therefore thi village was selected. Two village which were easily accessible an located at minimum distance covered by DPAP were als selected. In addition to thes seven villages, three mor were chosen from outside th watershed areas for the purpose o comparative evaluation.

For sampling of farmers, five pe cent of the farmers covered b each watershed were included o a random sampling basis. In all 150 farmers were selected, 75 fron Chandakavate watershed, 7 fron Yarnal watershed, 25 from DPA watershed and 43 from adjoinin areas.

Primary data related to the are of different crops grown by th sample farmers was collected fo the year 1988-89. It was subjecte to tabular analysis. Secondary dat related to the area of differen groups of crops over a period o years from 1970 to 1988 wa collected from the Department o District Statistical Office. Annu compound growth rates wer computed.

Results

It could be seen from Table that the total cropped area und all the crops increased marginal by 0.43 per cent following th adoption of dry farming develo ment programmes, whereas, th area under cereals and fibr showed a decline of 10.73 and 9. per cent respectively. The ar under pulses and oilsee increased by 46.40 per cent a 46.14 per cent. This could attributed to the shift from

emunerative crops (coarse cereals) o more remunerative crops like ilseeds and pulses.

The growth rates for cereals is 0.88 and fibres -5.25 which are ound to be negative, the latter lone being significant at 10 per ent level. In contrast, pulses with .07 and oilseeds with 6.99 are ound to be positive, the latter lone being significant at 5 per ent level.

The percentage of area devoted o cereals and fibres had declined om 66.76 per cent to 59.36 per ent and from 13.98 per cent to 12.61 er cent respectively during pro- ramme period. In contrast, the ercentage area devoted to pulses icreased from 6.68 per cent uring the pre-programme period o 9.73 per cent during the rogramme period. The orresponding percentage for oilseeds registered a marked increase from 12.58 per cent to 18.30 per cent.

It is observed from the Table 2 that the percentage of gross cropped area devoted to cereals by outside farmers was found to be much higher compared to watershed farmers. For pulses, oilseeds and fibre crops, the corresponding percentages were found to be lower. This could be attributed to the lack of initiative to experiment with new varieties of crops. They still followed traditional practices and cared for their food and feed requirements rather than for sale of surpulses in the markets. As a consequence, cereals were given priority in their cropping decisions. So far as fibre crop is concerned, it is more risky and capital intensive. Farmers living outside the watershed areas did not have the requisite facilities to obtain credit to overcome the resource constraints. They also did not have the advantage of seeing the demonstrations carried out by the extension agencies within the watershed areas and were therefore, unable to reduce the risks of crop failures.

Between the different water sheds, Yarnal showed the most remunerative cropping pattern: 33.46 per cent area was devoted to oilseeds and 19.29 per cent to intercrops. In the case of Chandakavate and DPAP water-sheds, the corresponding per-centages for oilseeds were 27.46 and 23.04 per cent.. Regarding intercrops, the difference in the percentage area, compared to that of Yarnal was even greater in both Chandakavate as well as DPAP. The intercropped area accounted for 8 per cent compared to 19.00 per cent in Yarnal.

The percentage of the area devoted to cereals was found to be 37.01 in Yarnal compared to 62.7 per cent in DPAP and 47.16 per cent in Chandakavate. This could be due to the fact that Yarnal watershed was started on a clean slate with the definite aim of raising productivity levels of crops and incomes of the farmers and focussed its attention on those crops which could provide better returns. DPAP, in contrast, did not have this objective. It aimed at providing immediate gains in income and employment to the farmers which could not be shown by following the traditional pattern. Changes in the cropping pattern would require more investment and more time. In Chandakavate, the majority of the sample farmers belonged to the large farmer category and they could meet the higher costs as well as the risks of fibre crops apart from the technological advantages they enjoyed.

It was further observed that the cropping intensity of outside farmers worked out to only 104.64 in contrast with 123.53 for Yarnal, 112.26 for Chandakavate and 109.65 for DPAP. This was due to the

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Table 1

Impact of Dryland Farming Development Programme on Area and Cropping Pattern during 1970-71 to 1987-88 in Bijapur district

Crop groups	Area in ha 1970-71 to 1973-74	1974-75 to 1987-88	1974-75 to 1983-84	1984-85 to 1987-88
Cereals	9,06,526	8,11,052	8,22,943	7,81,324
Pulses	90,850	1,33,004	1,29,980	1,40,564
Oilseeds	1,71,157	2,50,136	2,05,635	3,61,389
Fibre Crops	1,90,210	1,72,382	1,97,030	1,10,763
Total	13,60,743	13,66,574	13,55,588	13,94,040

Table 2

Cropping pattern adopted by sample farmers in different watersheds of Bijapur district during 1988-89

(In hectares)

Crop groups	Watersheds Chandakavate	Yarnal	DPAP	Total	outside the watershed
Cereals	223.71	15.01	65.16	303.88	117.65
	(47.16)	(37.01)	(62.70)	(49.11)	(57.98)
Pulses	45.32	3.19	1.53	50.04	9.25
	(9.55)	(7.87)	(1.47)	(8.09)	(4.56)
Oilseeds	130.24	13.57	23.94	167.75	44.29
	(27.46)	(33.46)	(23.04)	(27.11)	(21.83)
Fibre crops	38.23	0.96	4.80	43.99	9.25
	(8.06)	(2.36)	(4.62)	(7.10)	(4.56)
Intercrops	36.84	7 82	8.49	53.15	22.46
	(7.77)	(19.29)	(8.17)	(8.59)	(11.07)
Gross cropped area	474.34	40.55	103.92	618.81	202.90
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Net area	422.55	32.82	94.77	550.14	193.89
Cropping intensity	112.26	123.53	109.65	115.30	104.64

Figures in brackets indicate percentage of respective totals

Milch Animal Scheme in Drought-Prone Areas
A Case Study

Dr. K. Jayachandra

Milch-cattle rearing in drought-prone areas holds promise as it helps in ensuring steady income and reducing dependence on agriculture. In the present case study, the author notes that this scheme finds favour with small and marginal farmers as well. The author makes some concrete suggestions for making the scheme more effective.

IN DROUGHT-PRONE areas cattle is not just a source of farm power or family food supply, but the major and often the only source of cash income as the agriculture yield is low and erratic. Chittor district in Andhra Pradesh is one of the drought-prone areas which has considerable scope for the development of animal husbandry. It is therefore aimed under Drought Prone Areas Programmes and Arogyavaram Development Society to encourage farmers to take such subsidary occupations like cattle rearing, sheep rearing, poultry etc to help them in stabilising their income and to reduce their dependency on agriculture. Under Arogyavaram Development Society, loans are provided for milch animals, digging of wells, pump sets etc. to identify beneficiaries in order to provide them with an additional source of income so as to bring them above the poverty line.

In the present study an attempt is made to study the impact of milch animal scheme on rural poor. This is well illustrated with an example. Conclusions and suggestions are drawn for making the scheme a success in this area.

M. Ranemma, a widow, lives in the village of Dubbiganipalle, Chittor district, Andhra Pradesh. She possesses 35 cents of wet land, and 2.5 acres of dry land. She has received a loan from Arogyavaram Development Society. The loan has been given through Indian Bank, Chinnatippasamudhram. She purchased a crossbred cow with the help of a field officer of Indian Bank in October, 1988. He was satisfied with the process of purchasing the milch animal, considered to be of good milk yielding bred.

Ranemma knew very little about liabilities, terms and conditions of the credit institutions. She has repaid the whole loan amount within a year in instalments through the Milk Collection Centre. There is no veterinary centre in the village. The distance between the veterinary centre and the village is 2 miles. A veterina officer visits this place twice thrice a month, but she prefers go to Veterinary hospital Chinnatippasamudhram getting veterinary aid.

Ranemma sells milk to M Collection Centre of Andh Pradesh Dairy Development C operative Federation Ltd., whi is located at a distance of 1½ K. The centre buys milk on the ba of fat percentage. She delive milk to the Milk Collection Cent at 7 a.m. and 6 p.m. She gro dryland crops in her 2.5 acres dryland which yields dry fodd She purchases feed and fodc from Chinnatippasamudr which is nearer to her village. S provides groundnut cake, ri bran and mineral mixture as cat feed. She normally gives 4 Kg. mineral mixtur, 4 Kg of Rice br and 1 Kg groundnut Cake.

Economics of Milch Animal

Ranemma did not have mi cattle earlier. Under Arogyavar Development Society, she purcha one milch animal. The follow figures show the economics milch animal.

The average milk yield per d 8½ litres. She gets an averag about 240 litres of milk per mo which comes to Rs. 960 per mo at Rs. 4.00 per litre. She consu

Table 1

Daily Receipts

Item	Quantity in Litres	Average price	Total valu
Milk sold	8.00	4.00	
Personal consumption	1/2	4.00	

1·2 litre milk per day for her family which comes to Rs 60 per month The cow dung manure fetches Rs. 20 per month.

	Rs.
Price of milk sold	960·00
Personal consumption	60·00
Cow dung manures	20·00
Total income per month	1040·00

For feeding concentrates to the animal, she spends Rs. 330 per month. It includes mineral mixture, groundnut cake, rice bran etc. For dry fodder she spends Rs. 146 per month. For green fodder she does not have to spend anything because she gets it from the field. If we put the value of wages for getting green grass it comes to Rs. 90 per month. The following figures show clearly the total expenditure per month per animal.

	Rs.
Mineral mixture	180·00
Groundnut cake	102·00
Rice bran	48·00
Dry fodder	146·00
Total expenditure per month	476·00

She collects the cost of milk from the Milk Collection Centre at the end of every fortnight. Dairy farming has created new employment opportunity for her family In her family she and her son look after the animal. They were partly unemployed before getting the milch animal. Now she spends five hours and her son four hours for looking after the animal.

Ranemma and her family think that this job is easier than working in other fields. Her son prefers to look after his own animal. She goes to the nearby field to cut green grass for the animal only for a few days because there are no rains during the whole year. Before they got the milch animal, she used to meet the minimum needs of her family with difficulty. But after taking this occupation, her economic position has been improved considerably. She has repaid the loan amount within a year. In the village she is considered as a credit worthy person, and she gets petty loans from the villagers with little difficulty. She and the members of her family can afford to have better clothes and food than before

The benefits derived from the milch animal are twofold. Besides milk, she gets manure for her fields. Earlier, she faced some problems in keeping the milch animal as there was no proper shed. But now she has overcome the problem.

Dairy farming has provided her with gainful employment and regular cash income throughout the year. She thinks that this programme can really help the rural poor.

Suggestions

Based on the findings of this case study and informal discussions with villagers and officers the animal husbandry depa ment, the following suggestio are made to make the Milch Anim Programme more effective in tl district.

Distribution of milch cattle only a part of the scheme f improving economic condition the weaker sections in rur areas. The important aspects to l well attended for the success this programme are veterina coverage, animal husband extension activities,fodder a pasture development centr creation of infrastructure faciliti for supply of cattle feed subsidized rate, marketing of mi etc. In order to keep the cattle hygienic condition it is necessa to provide subsidy to tl beneficieries for erecting cat sheds.

Also, the Government shou provide finance for milch anim and feed at subsidised rates. Th rules should be relaxed to som extent for getting loans throug DRDA.

Economic analysis of rearin milch cattle done by the anim husbandry department in the are indicates that as compared graded buffalo, crossbred cow definitely give more net incom per animal. Therefore, th possibility of distribution of cow under DRDA needs to b examined. □

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differences in water and soil conservation measures adopted in the watersheds which had made it possible by introducing double cropping in these areas. From this point of view, Yarnal watershed showed the best results. Outside the watersheds, double cropping was observed on a very limited scale.

Conclusion

The objective of all the watershed programmes would be to introduce desirable changes in the cropping pattern followed by farmers away from the traditional and less remunerative crops and directed towards commercial crops. Even within the group of cereals, the aim is to shift from coarse cereals like jowar and bajra to wheat.. Judged by this criterion, the analysis of the cropping pattern of the different watersheds showed greater success at Yarnal compared to Chandakavate./DPAP had not made any impact and improvement in this respect whatsoever. In fact, the cropping pattern followed by outside farmers was found to be more progressive compared t that of DPAP farmers.

Form the analysis of secondar data it was found that there is continuous decline in the are under fibre crop. Improved varieti of this crop should theresore b developed with a package o practices which suited to Bijapu district to ensure that there is n further reduction in the area o this crop. □

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Consumer Audit

Dr. K. Seshaiah and N. Adikrishnaiah

Underlining the importance of the subject, the author notes, it will help in assessing the responsibility of the producers towards the consumers. It is more than an academic issue and if followed with due seriousness can pave the way for changing business environment. The best strategy in the long run is protection of self-interest by consumers themselves.

THE DIVORCE OF PRODUCER from consumer has made the exploitation of the consumer easy through various methods and means— adulteration, short-measurement, under-weighment, over-pricing etc. The enactment of consumer protection laws and resistance of consumers in several ways could not make much headway in remedying the injustices of business. This is partly due to the complexities of consumer behaviour and partly due to lack of integrated effort.

In this article an attempt has been made to analyse the above issues and suggest an alternative approach viz., 'consumer audit', to provide an integral farmework not only to review, appraise and check the activities of business and government in serving and protecting the interests of the consumers but also to awaken the consumer collectively.

The philosophy of an enterprise is based upon marketing while the philosophy of marketing depends upon the conumer satisfaction. The idea of consumer supremacy and consumer sovereignty is fallacious. The consumer has been exploited both in developed and developing countries in varying degrees. A consumer in an advanced country like U.S.A. with high technology and low cost of production mechanism, long range planning and effective control, on the one hand and consumer consciousness and consumer resistance in an organised way on the other, is exploited by the producer and distributor by adopting various strategies. In a developing economy like India where there is abundant labour, unequal distribution of income, scarcity of capital and lower technological application, the consumer is supplied the products and services of low quantity and quality at higher price resulting in exploitation.

Laws galore

In India, there is no dearth of consumer protection laws Some of them are:

1. The Drugs and Cosmetic Act, 1940, 2. The Drugs Control Act, 1950, 3. The Industrial (Regulation and Development) Act, 1951; 4. The Indian Standards Institution (Certification Marks) Act, 1952; 5. The Drugs and Magic Remedies (Objectionable Advertisements) Act 1954; 6. The prevention of food (Adulteration) Act, 1954; 7. The Essential Commodities Act, 1955; 8. The Standards of weights and Measures Act, 1956; 9. The Trade land Merchandise Act, 1958; 10. The Essential Services Maintenance Act, 1958; 11. The MRTP Act, 1969; 12. The Household Electrical Appliances Act 1976; 13. The Prevention of Black Marketing and Maintenance of Supplies of essential Commodities Act, 1980 and 14. The Consumer Protection Act, 1986.

Besides, there are hundreds of statutory orders and notifications seeking to serve the interest of the consumer in one way or the other

Despite the government (legislative and administrative) measures the dictum 'caveat emptor' (buyer beware), instead of 'Caveat Venditor' (seller beware) seems to prevail in which the consumer finds himself. This is partly due to the fact that laws lack teeth and abound in loopholes. The enforcement officials too contribute to the ineffectiveness of law by their general attitude. Further, all these measures run independently without a coordinated and integrated effort.

Consumer Complexities

Every consumer has to be assumed to be rational and sovereign in purchasing, possessing and enjoying the products and services. However, the consumer is neither rational nor sovereign. For example a consumer cannot see, smell, touch or feel the pesiticide residue in his food, unless someone tells about the danger. It is then only he begins to exhibit his discontent and frustation. Historically it is evident that countless goods, sub-standard and unsafe have been produced and supplied to the consumers without their knowledge.

The purchases made by a consumer often are not based on sovereignty as they are made on compulsions due to the physical biological and social limitations The individuals cannot overcome these limitations as such they continue to purchase with all their dissent and discontent. Further the purchases are not made on their personal judgement but by following the advice of other

Futher, very few consumers are rational when influenced by the likes and dislikes due to the operation of psychological forces. For example, a consumer behaves as a different person while buying his/her groceries and while buying the lipstic or automobiles.

Consumer Audit

As an integrated measure to over-come the complexities, a new controlling device– 'Consumer Audit– is suggested here. Audits are not new to business activities. Traditionally, they are meant for a review and evaluation of some business activity. Though they have long been used in accounting and financial operations, they are now used in management, environment manpower personnel, marketing etc.

A consumer audit is a systematic, critical and unbiased review and appraisal of the basic objectives, policies, procedures, methods and programmes of an enterprise, government and voluntary organisations serving and protecting the consumer interests. In other words, it is an impartial and independent inquiry made to assess the nature and extent of the responsibilities discharged by the business, government and other agencies towards consumers so as to avoid and mitigate their grievances and tension.

The review and appraisal must cover the objectives,policies procedures and methods,programmes and strategies of all the groups, viz business, government and voluntary organisations like consumer associations, cooperative societies etc., from the view point of their services rendered and protection provided for the consumer.

Consumer audit is required basically for disclosing the consumer performance of an undertaking. Without consumer audit, the management also may not be able to face the challenges of the consumers who will be well trained through consumer education in future. Consumer auditing need not the viewed simply as an academic issue but is a practical and pragmatic proposition in the ever changing business environment.

In general the audit should cover the following issues:

1. The nature of business and its missions
2. The nature of marketing, covering pricing, advertising, research and development, distribution and promotion.
3. Government legislative and administrative measures.
4. Prevailing ethical values.
5. Prevailing state of social audit, marketing audit and situational audit.
6. The consumer expectations.
7. The consumer education etc.

The appraisal should be an integral programme of all the activities of all the groups done at a time. Though it is an after-the fact review of the activities of all the groups related to the consumer, it involves an evaluation of the effects of alternative courses of action before a decision is arrived at.

The agency to organise consumer audit should comprise the cross section of the society drawing representatives from:

(i) business men,
(ii) trade union
(iii) consumers,
(iv) academicians,
(v) lawvers,
(vi) chartered accountants, and
(vii) social service and volunt organisations.

Representatives of these secti would be responsible for engag the necessary staff to cond consumer audit once in every t or three years. The organisatio audit should be developed three-tier or four-tier local le district level, state-level or Natio level. The overall control consumer audit finally should r with consumers.

It is a well established fact, t whether in boom or in depressi advancement or underdevel ment, monopoly or monopso whether the object of product is profit or not whether the me of production are public or priv whether the market is free planned it makes no differe for consumer exploitation long as the consumer is gulli and susceptible. Then, what is way out ? The answer is ' protection', with 'self-inter Dependence on others can never that effective. Hence, the protect of consumer interests by the selves is the best strategy in long run. Further, such strat should be comprehensive a integral, covering all the iss concerned at all levels of acti through a preventive and curat device like consumer audit.

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etc. Besides these constructive programmes, voluntary organisations may provide managerial support to the community. It is likely that the Panchayat system is strengthened during the Eighth Plan through party-based elections for different tiers of Panchayat system. In that case, the problem of coordination with voluntary organisations may crop up. If effective linkage is not made between these two people's institutions, development works in rural India cannot deliver the goods to the people. There may be some weaknesses in voluntary organisations, they may not be well-coordinated but they are symbols of dedication and s lessness. In the countr democratic set up, it will be bet if the party-based Panchayati institutions act as advisors a implementation of different wo be left to voluntary organisatio

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Ginger Production: Problems and Prospects

Dr. Vigneshwara. V.

In the 70s India enjoyed a monopoly in the production and export of ginger and ginger products. The position has since changed with the emergence of other countries in the field. What are the reasons for this declining trend? What are the probable remediès? The author answers these through this article.

GINGER IS THE RHIZOME OR root stock of ierbaccous perennial 'Zingiber Officinale'. It is one of he important and ancient spices of India who is the argest producer of dry ginger in the world. Apart from ndia the other countries which produce Ginger are Japan, Jamaica, Indonesia, Bangladesh, Fiji, South Korea, Thailand etc. In India the cultivation of Ginger s undertaken in almost every state

There are several varieties grown in different parts of India. Important among them are Maran, Nadia, Karakal, Wynad, Ernad, Rio-de-Janerio, Thingpui, China, Poona and Tofengive. Of these, Maran, Nadia and Karakal have higher dry ginger recover while for vegitable ginger Rio-de-Janerio, China, Wynad and Maran are preferred. All hese varieties differ in shape and size, rhizomes, yields, moisture content, flavour quality etc.

The harvesting of ginger differs according to its end use which may be as a fresh green type for flavouring, for preserves or as a dried spice. The spice ginger is the dried ginger prepared after partially peeling off the outer skin of raw ginger and then sun drying for 10-12 days. Another type of ginger is called the bleached dry ginger which is prepared by dipping the peeled ginger into a solution of fresh slaked lime and then drying in the sun. Dry ginger is used for the manufacture of products like ginger powder, oil & oleoresin while fresh ginger is used for preparing candied ginger.

Uses

Ginger has a distinctive, spicy, penetrating flavour and is largely used in foreign countries for the manufacture of Ginger oil, Ginger essence, Ginger oleoresin or Gingerin. Besides, starch from spent ginger, ginger soft drinks or non-alcoholic beverages, vitaminised effervescent ginger powder for use in soft drink; alcoholic beverages, ginger preserve, ginger candy, lime ginger pickles and ginger as flavourant in some food products, are also known to be popularly used. Ginger oil is primarily used as a food flavour and as a flavouring agent in soft drinks like ginger ale, bitters, carbonated drinks, cordials, liquors etc. Ginger oil finds use in the preparation of essences for pharmaceutical purposes. Fresh ginger converted into fine paste and after mixing with sugar, lime juice or acid and water is being utilised in the manufacture of soft drinks.

World Production

India is the largest producer of Ginger in the world followed by Thailand and Japan respectively. The total production of Ginger in the world in 1980-81 was about 141.73 thousand tonnes which has increased to 359.6 thousand tonnes during the period 1986-87. Country-wise production of Ginger for the year 1986-87 is given in Table I, which indicates India's share in the world production of Ginger at about 35%, which is far below the percentage of production in 1980-81 which was around 65%.

Table 1 reveals that countries like Bangladesh, Thailand & Japan are emerging as the leading Ginger producing countries in the world. Almost all the countries which produce Ginger have been showing a positive trend in the production except India.

Area, Production & Yield

In India the cultivation of Ginger is done in almost all the states. However, Kerala accounts for about 40% of the total production followed by Meghalaya, Sikkim, West Bengal, Karnataka, Arunachal Pradesh, Himachal Pradesh, Madhya Pradesh, Manipur & others. As far as area under Ginger is concerned, Kerala covers about 30% of the total area under Ginger in India followed by Meghalaya and other states. As far as average yield per hectare is concerned, it is as high as 4739 kgs/ha in Sikkim, 4132 kgs/ha in Mehgalaya and 2750 kgs/ha in Kerala whereas in the remaining states yield/ha is lower than the all India average.

The overall trend in area, production and productivity/ha is shown in Table 2. In 1970-71 the total area

under production was 21.59 thousand hectares and the production was 29.59 thousand tonnes which has increased to 40.80 thousand hectares in 1980-81. Further the total area under this crop has increased to 53.69 thousand hectares in 1987-88, and production has reached to about 135.46 thousand tonnes during the same period which clearly indicates a positive growth rate.

Import

Dry Ginger and other ginger products were imported from the other Ginger producing countries of the world in the initial years to meet the internal requirements. We imported 156 tonnes of Ginger in 1970-71, valued at Rs. 878 thousands and the maximum volume of 1644 tonnes, import was made during the period 1981-82 valued at Rs. 6.160 thousands. Presently our imports of Ginger and its products are negligible.

Export

There is a high demand for Ginger and Ginger products in the International market. India exports the major part of its production to the countries like Saudi Arabia, Yemen Federal & Arab Republics, U.S.A., U.A.E, U.K. etc. The High Income oil exporting countries have been the major importers of Ginger from India over the years. Saudi Arabia alone imports nearly 40% of our exports. As a whole Saudi Arabia, Kuwait & U.A.E. import nearly 52% of our exports. In terms of value also they contribute about 55% of total export earnings of our Ginger exports.

In 1970-71 the exports of Ginger in terms of volume was 3,156 tonnes valued at Rs. 26,094 thousands and this reached to the maximum level during the period 1978-79 to the extent of 14,515 tonnes valued at Rs. 1,43,172 thousands. Then on, it has declined sharply and the lowest volume of 2,627.63 tonnes valued at Rs. 48,898.75 thousands was observed during the year 1987-88, which is the lowest since 1970-71. However, export has increased to 5,198 tonnes valued Rs. 9.22 crores in 1988-89 which is as high as 97.7% in terms of volume and 88% in terms of value over the previous year. The ups and downs in ginger exports is mainly because of poor production or yield and intense competition from countries like China, Taiwan, Thailand, South Korea etc. The fluctuations in internal productivity minimises the scope for export.

Export of Ginger oleoresins and Ginger oils

Ginger oleoresin is the extract of ginger powder using solvents like acetone or ethylene dichloride. It contains both the essential oil and the resinous part contributing to the aroma and pungency respectively. It is a dark brown viscous material. Ginger oil is obtained by steam distillation of dry ginger powder. We export these two products of Ginger to countries like U.S.A., German Federal Republic, Australia, France, U.K., Netherlands, Japan, Holland, GDR etc. U.S.A. is the major importer of these products followed by GF Republic and Australia. The available data on the export of Ginger oleoresins and Ginger oil as shown in Table III reflects that the volume and value of these exports has been increasing over the years.

Problems

However, there are certain problems which are responsible for the ups and downs in production as well as in our exports. These are :

(1) Non-availability of qualitative seeds minimised the scope for improving production. The existing varieties used in cultivation are not based upon the agroclimatic conditions and are used by the farmers without knowing about the productivity.

Table I

World Production of Ginger

Country	1980-81 Production in tonnes	% of share out of the Total	1986-87 Production in tonnes	% of share of the total
India	90.83	64.08	127 00	35.31
Japan	13.50	9.52	67.40	18.74
Jamaica	0.90	0.63	0.53	0.14
Indonesia	2.00	1.41	10.50	2.91
Bangladesh	2.00	1.41	29.00	9.06
Fiji	2.00	1.41	3.60	1.00
Sierra Leone	1.00	0.70	1.00	0.27
South Korea	NA	—	20.22	5.62
Mauritius	NA	—	0.54	0 15
Thailand	NA	—	88.61	24.64
Malaysia	NA	—	1.20	0.33
Total including others	141.73	100	359.60	100

Source: D of Cocoa, Arecanut & spices D't, Calicut

Table 2

Area, Production and Average Productivity of Ginger in India

Area, in '000 hectares
Production in '000 tonnes
Average yield/hectare in kgs.

Year	Area in '000 ha	Production in '000 tonnes	Average yield/hac. in kgs.
1970-71	21 59	29.59	1371
1971-72	24.59	34.79	1412
1972-73	22.88	33.63	1470
1973-74	24 86	38.46	1547
1974-75	24.14	37.91	1573
1975-76	27.20	45.15	1660
1976-77	25 65	43.39	1691
1977-78	36.02	71.70	1991
1978-79	40.80	75.72	1856
1979-80	41.42	71.14	1717
1980-81	40.45	82.44	2038
1981-82	41.11	89 71	2182
1982-83	44.72	90.83	2031
1983-84	48.96	121.31	2478
1984-85	51.51	133.86	2599
1985-86	53.52	138.02	2579
1986-87	52.65	136.01	2583
1987-88	53.69	135.46	2523

Source · Collected from various issues of Indian Spices Journal.

Table 3

Export of Ginger oleoresins and oil from India

Q - Quantity in Kgs
V = Value in Rs. '000

Year	Ginger Oleoresins		Ginger Oil	
	Quantity (in kgs)	Value in Rs. '000	Quantity (in kgs)	Value in Rs. '000
1973-74	50	5	114	45
1976-77	1962	354	1047	641
1977-78	6083	1702	1287	935
1978-79	9104	1792	12283	5700
1980-81	5541	1099	6367	2550
1981-82	9163	2231	6478	1587
1982-83	5054	1642	6403	3404
1983-84	9193	3305	4732	3838
1984-85	9385	4759	14984	12463
1985-86	12500	5065	41200	50145

Source : DG of CI & Statistics, Calcutta.

(2) Problem of pests and diseases limits the production in this sector. Pests like shoot borer, leaf roller, scale insecticides etc. and diseases like soft rot, leaf spot are responsible for the variation in productivity.

3. Drying of ginger in many states appears non-practical due to economic and climatic conditions. The harvesting period of ginger synchronises with mid-winter period in states like Meghalaya, Mizoram, Manipur etc., and thus, sun drying, which is most economical method followed in Kerala, is not possible. Even if they dry ginger in the sun when the winter temperature is between 10 to 12°C., the drying occurs superficially and water content inside the rhizome gets locked up due to the dry outer surface and due to long durati[illegible] of exposure, the incidence of Asperqills species fungi occur which results in the contamination [illegible] aflatoxin in the resultant dried ginger. Due to t[illegible] presence of aflatoxin, the ginger becomes unacce[illegible] table for human consumption and does not p[illegible] through Food & Drug Administration checks of [illegible] importing countries.

4. Most of the growers sell green ginger (fresh) to [illegible] Dalals and Dalals, who are the agents of [illegible] agents of secondary market or wholesale T[illegible] Market. The various steps involved before the [illegible] is sold in the terminal market through the [illegible]

Contd. on [illegible]

To Keep our Islands Intact

S.S. Chana

FAMOUS FOR ITS picturesque surroundings, the Andaman and Nicobar Islands– the emerald Islands- are also known for the richness of its flora and fauna The tropical climate, high humidity and well-distributed rainfall have blessed the territory with a luxurient forest cover. which extends from the water's edge to the hill-tops.

Till now, the floristic and faunal surveys in the Islands have been confined to the easily accessible areas. Complete inventory of the flora and fauna is, therefore, still not available. Out of around 2300 species of flowering plants listed so far, 206 are endemic to the Islands. Similarly of the 55 species of mammals, 20 are endemic. Of the 242 species and sub-species of birds, 95 are endemic and out of 81 species of reptiles, 25 are endemic.

The Islands with about one-fourth of the country's coast-line also encompass nearly one-third of its Exclusive Economic Zone. More than 2900 species inhabit the rich coastal marine areas, which include nearly 600 species of fishes, and many species of corals, sea pens, chitons, polychaetes, molluscs, starfish, sea turtles, mammals and a variety of snakes The Islands are also the richest repository of mangroves in the country-perhaps one of the richest in the world. More than 40 species have been identified here, out of which 25 are exclusive species The mangroves are spread over an area of 97,300 ha

The complex and sensitive eco-system of the Islands is today under great pressure. It started in the post-independence period, when the Government, faced with a gigantic national problem of settlement of refugees, undertook extensive colonisation and settlement schemes. The problem was further compounded by settling people haphazardly. The richest ever-green forests were cleared from the valleys and Flat lands all over.

NEEDED –A SOUND STRATEGY

Though the life support systems are still largely intact, the so called developmental activities undertaken in the post-independence period have interfered with the health of the environment. Unless certain trends are checked, before it is too late, permanent damage is likely to be caused to the fragile eco-system. There is, therefore, an urgent need for sincere introspection of policies being pursued for the development of the Islands and to chalk out an environmentally sound development strategy, which is realistic and pragmatic. No doubt, such a strategy must take into account the basic needs and gainful employment of the local people.

Land being a very limited and most precious resource in the Islands had to be used very judiciously The future development strategy for the Islands has to take into consideration the ways and means of utilising every inch of the land already cleared To achieve this, there is an urgent need for a detailed soil and land capability survey and taking up extensive soil conservation measures, especially on the slopes under cash crops like coconut, arecanut, rubber etc Unless these measures are introduced intensively, the poor yields from the cash crops will not improve and land will continue to degenerate further A Lot of other steps are also to be taken including introduction of multiple cropping, water harvesting etc.

Another factor affecting the well-being of the Islands is the misplaced emphasis on the development of roads. Road construction not only destroys the luxurient forests but also makes the interior areas more accessible and susceptible to encroachments and general degradation, besides loosening of the soil and causing landslides This, in turn, causes siltation of streams, creeks, sea coast etc. Haphazard quarrying of sand and metal from the easily accessible areas has also added to the problem. Selection of quarry sites for sand and stones has to be done very carefully keeping the environmental aspects in view

THE FORESTS

Though the forest cover, as assessed by the Forest Survey of India from the satellite imagery, extends over 91.96 per cent of the territory, the reserved and protected forests form about 86 2 percent of the area Nearly 50,000 ha of revenue land still support pristine forests.

Fifty percent of the forest area, specially distributed throughout the territory has been set aside in the form of Tribal Reserves, National Parks and Coastal belts, where no forestry operations are being undertaken. This will serve as the gene pool reserve considering the biological diversity of the areas 94 Wild Life Sanctuaries and 6 National Parks (including a Marine National Park) besides a Biosphere Reserve have been notified to protect the unique flora and fauna of the Islands.

Being a renewable resource, scientifically managed forests can be used for meeting the needs of the local population without causing any degradation

to the eco-system. The great success achieved in re-stocking the harvested forests, through aided natural regeneration has made the Forest Department give up the system of clear felling and raising teak or other monoculture plantations, in the year 1978. More than 50,000 ha. of harvested forests have been re-stocked by following the natural regeneration technique.

Mangroves are of considerable importance and nourishment to a variety of marine fauna. Nearly 4000 ha. of mangroves fall within the revenue and alloted lands which enjoy little protection. Most of the damage has occurred in such areas, especially those adjoining the habitations. While legal support for the protection of mangroves outside the forest areas needs to be formulated, the degraded areas can be profitably utilised for prawn/fish culture to boost the earning of the local people.

THE MARINE SCENE

As far as the marine eco-systems are concerned, there has been wanton collection of corals and shells in the past from the accessible coastal belts which has caused extensive damage. Coral reefs have also suffered from siltation, besides from tourist boats, snorkelling, uscba-diving dredging etc. Construction of break-waters, wharfs and jetties is also contributing to the environmental degradation in its own way. There is, therefore, an urgent need for undertaking a detailed survey of coral reefs in the Islands

The Administration has since banned collection of corals. Collection of sea shells is permitted only from within the zones being auctioned by the Administration. With the establishment of a separate Wild Life Wing, the Forest Department has taken up the survey of coral reefs within the Wandoor Marine National Park besides the survey and protection of turtle nests in the Marine National Park and Cut Bert Bay.

The influx of population is another major aspect which needs immediate and serious attention of the authorities. Land being limited and the eco-system highly sensitive, the islands have limited capacity to withstand the poulation pressure. Although only 38 islands, out of 306, are inhabited, the population has increased alarmingly from 30,000 in 1951 to over 3 lakhs in 1989. Unless this trend is checked on priority, all measures taken for protecting the environment will be nullified.

Because of the fragile eco-system, the islands are not cast for tourism as a main industry. Tourist pressure is also likely to burden the already strained shipping facility because of the dependence of Islands on the mainland for provisions. At present, the tourist concentration is generally confined to Port Blair and the Marine National Park though there are many equally interesting places. Dispersal of tourists is necessary both in the interest of tourists as well as for environmental conservation.

Nearly 2,500 sq. km has been notified as Tribal Reserves, where the local tribals enjoy unrestricted rights to the use of land, forest produce and other facilities. Andaman Adim Janjati Samiti has also been established to look after the welfare of the primitive tribes. The Administration's policy of housing the Andamanese and Onges in permanent houses at Strait Island and Little Andaman Island has generated some criticism. The Great Andamanese is a vanishing tribe, whose numbers have reduced from 5000 to 29 in the last 100 years. Had the Administration not provided them with houses, coconuts, rations and medical aid, they would have disappeared by now ☐

(Contd. from page 29

erode the actual amount realisable by the grower.

5. Further Agmark grade specifications of ginger prescribed under the Agricultural Produce (Grading and Marketing) Act, 1937 are only for Kerala grown ginger and not for ginger of other states like, Karnataka, West Bengal, Himachal Pradesh, Rajasthan, Orissa, Madhya Pradesh etc.

The above problems call for immediate solution. The following suggestions are put forth to solve the existing constraints and thus increase our exports.

Suggestions

1. There is a need to supply qualitative high yielding varieties of Ginger seeds to the cultivators and the varities should be supplied on the basis of agroclimatic conditions. The Horticulture Deptt. can conduct necessary surveys and arrange short training courses for the farmers to appraise them of the various aspects of cultivation, fertilization, harvesting and marketing.

2. Supply of Pest control sprays, chemicals for diseases can improve productivity. These can be supplied either through co-operative societies or through Fair Price shops.

3. To tide over the problem of contamination of aflatoxin, by sun drying and to minimise loss, the alternative methods like mechanical drying or dehydration of ginger by artificial heating can improve the quality of dry ginger. The financial institutions should assist the farmers since the cost of adopting these methods is high. More and more Research and Development activities should be undertaken so as to provide low cost mechanical devices and technology to the farmers.

4. The co-operatives should purchase the product from every producing area so that farmers get a fair price for the product.

5. The Agmark grade specifications of ginger may be extended to all the states to facilitate assessment of quality and easy marketability. ☐

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Puttur, Karnataka

Service Area Approach - A Boon to Rural Development

Krishnan. C

THE THREE ASPECTS OF the Service Area approach are Service: uplift of specific number of villages, proximity and continuity of villages to the branch and, starting the credit planning process from village level.

As per the new strategy, each bank branch in rural areas will be allotted a specific area for its operation. The overall development of that area is the exclusive duty of that particular branch. Again, the Branch Manager is the nucleus of this approach. He is given the duty of conducting periodical survey of the resources and needs of the area in which he is working. In this way each branch manager in villages prepare credit plans and finally, it will add up to make the District Credit Plans (DCPs). The Service Area Approach is being implimented since April last year.

In India, there are about 5,76,000 villages. These villages are to be serviced by 42,000 rural branches of commercial and regional rural banks. That is, a rural bank branch has to cater to an area of 15 to 25 villages. Though this approach appears to have some similarity with the 'Village Adoption Scheme', introduced in 1970s, it is entirely different. Under SAA a particular area is entrusted to a particular branch exclusively. No other branch is allowed to operate there.

Features

The first important feature is that, the bank branch will cater to the overall development of its command area. Secondly, the branch manager has a pivotal roal to play. As he is closely connected with the rural customers, he can use his capability to solve the problem of his operating area. Thirdly, unlike other schemes, S.A.A. envisages the co-ordination and co-operation of other agencies also in the process of rural development. Again, the continuous survey of the potential of villages provides sufficient realistic data base of the economy.

Though this approach has developmental importance, it is not free from problems and limitations. First, this approach does not give any role to the cooperative banks to cater to the rural needs As an institution working in the interior areas since the beginning of this century, the co-operatives should not have been excluded from the purview of S.A A Secondly, this new approach has a clear say over the provision of credit, but, it keeps quiet regarding deposit That is, a person is entitled to get credit only from one branch. But, he is permitted to deposit in any branch. This mav not be practicable in actual life

Thirdly, the bank branches of municipal and urban areas are completely excluded from this approach.

Fourthly S.A.A. has some problems, when implemented in States like Kerala, where banks are more than villages. For example, in Kerala, there were 2,387 rural and semi-urban bank branches in 1988. But there are only 1447 villages. So, in this condition, unlike the national level position, a bank branch in Kerala will cater to the needs of three or four wards (a village is usually devided into a number of wards according to population) in a village. This may limit the functioning of a big commercial bank into a small area. These limitations are to be solved without delay

In spite of all these, we can hope that, the 'Service Area Approach', as a strategy with emphasis on grass-root level planning, will be a boon to the process of rural development. ☐

Research Scholar, Deptt. of Economics. University of Calicut.

Book Review

Planned Development of Resources in a Developing Region by U.P. Sinha, Inter-India Publications, New Delhi, 1985, Pages 283, Price Rs. 300.

This is a very good book but with an involved and a clumsy title. It takes a resource inventory of the district and highlights the problems and prospects of resource development in a backward region where cultivable land is scarce and pressure of population high. The method adopted in the study is synoptic-regional analysis.

Integrated resource development planning is the sole aim of this project which was compiled after a collection of huge data from the field, statistical analysis and scientific appraisal of the available resources for the welfare of the society. The author tries to search out the present distribution and future growth potential of resources. An attempt has also been made to suggest feasible and practical plan with the help of integrating different resources of the region so that a viable economic system may evolve in the area under study. He makes an extensive use of maps, figures and diagrams to illustrate the problem.

The author procceds methodically in his chapter presentation. In Chapter I, Introduction, he states the problem. In Chapter 2 he reviews the literature and presents the hypothesis for resource planning. The physical setting and location is describe in Chapter 3

The district has a population of more than 33.14 lakhs, its density being 419 persons per Sq. Km. Growth of polulation between 1971-81 was 20.75 per cent. Only 27 per cent of population was urban. On an average,there were 937 females for 1000 males. Emigration for work, chiefly towards the coal fields of Chhotanagpur and the tea gardens of Assam, is high. Only 18.98 per cent of the population are able to read and write.

After describing thus the human resources in Chapter 4, the author goes to describe the forest resources in Chapter 5. Land resources are examined in Chapter 6 and water resources in Chapter 7

Rice is the most important crop of the district. Nearly one-fourth of the gross cropped area is double cropped. The average area per holding is as low as .40 hectares. Eighty two per cent of holdings are below 2 hectares, making the district of marginal cultivators and small farmers. It is an irony of fate that ...n blocks in the district are flood affected whereas ...ght blocks are drought prone. Tubewell is the chief source (43.20 per cent) of irrigation. No doubt irrigation increses agricultural production, but it also makes sustained and successful cultivation of crops. Transportation linkages are examined in the next chapter.

The plan of integrated development of resources is presented in Chapter 11. Integrated rural development implies development of all sectors of the rural economy and society. The author favours the hierarchy of settlements approach. In fact, the presentation of the method for an integrated development of the district is a major highlight of the book. His method of measuring the integrated development is particularly instructive. On the basis of summation value of ranks, the author has worked out a final index of integrated rural development. This is an original contribution of the author. He has also done a co-relation matrix of different variables. Irrigation has high co-relation of 0.94 with agricultural production. Hence, irrigation is highly needed. Chapter 12 gives the summary and conclusions. Important lesson to be learnt is that the lop-sided development of a region becomes infructuous. Hence, the authorities should try to develop resources on a planned basis with equal emphasis on managerial control, technological assistance, institutional help and local participation. □

S.M. Shah

Sikh Shrines in India by G.S. Randhir, Published by the Publications Division, Ministry of Information and Broadcasting Pages 109; Price Rs. 32/-.

Different religions and social beliefs have overtime enriched the flow of composite Indian culture. The contribution of Sikhism has proved to be rather vital in this connection. The Sikh movement is a great landmark in the religious history and has always left a deep and lasting impact on the Indian society.

The book under review is a fresh written version containing far more information than the previous edition. However, the introductory chapter 'The Sikhs' and Appendices I, II and III of the previous version have been retained in view of their immense informative value. Appendix IV giving the chronological order of the Sikh Gurus along with their dates of birth, installation and death is rather informative.

The first chapter on 'The Sikhs' is refreshingly comprehensive and narates all the important

...cepts and the idealogies related to Sikhism and the Sikh philosophy, the importance of their holy book– Guru Granth Sahib, the management of the Sikh shrines etc. The book then goes on to give a compact profile of the major Sikh shrines in India. The success of the book lies in the delightfully lucid and simple presentation of the architectural style of the different Gurudwaras. This induces the reader to visit some of the shrines, so vividly depicted. The historical details associated with each shrine make very interesting and absorbing reading. The author has also given a brief outline of the shrines in Pakistan and Bangladesh in the Appendices.

An added feature of the book is that it is rather pictorial and has a good number of photographs and coloured transparencies of some of the important Sikh shrines in India. These not only add to the value of the book but also enable the reader to get an idea of the architectural style and shape of the sacred monuments.

The book is reasonably priced and is free of typographical errors. However, maps showing exact locations could have made the picture more specific. This book would make useful reading for all those interested in the study of Sikh society and will surely prove to be a good guide for pilgrims of Sikh shrines and tourists.

Urvashi Sadhwani

CONTRIBUTIONS To POST-KEYNESIAN ECONOMICS by S. Kishan Rao; published by Sterling Publishers Pvt. Ltd. L-10, Green Park Extension, New Delhi 110 016. First Published 1987. Pages 77. Price Rs. 80.00.

This book is written in six chapters, each focussing attention on one or two aspects. Starting off with a prologue to understand the central theme of the Post-keynesian thought, the book goes on to delineate the main schools of thought–Classical including Marxian, Neo-classical and Keynesian. There is a very good description of the salient features of the Post-Keynesian school as also the contribution of one of the pioneers of the school, Sir Roy Harrod. In fact, Harrod initiated the principal task of the Post-Keynesians to reconstruct the economic theory in the dynamic setting.

The debate over the causality and equality of savings and investment has been critically reviewed in subsequent chapters, stressing the damage done to the development of economics (especially to the LDCs possessing abundant real resources) due to the misconceived notion of savings. There is also a useful discussion on Joan Robinson's view to provide an alternative theoretical framework. It is well-known that she along with Harrod, Kaldor, etc., undertook the task of generalising the General Theory so that long-run problems of capital accumulation and growth can be analysed. meaningfully. Her chief concern was to liberate economic theory from the mud of static economic theory.

Services rendered by Neumann and Sraffa to the development of post-Keynesian Production and Theory of Value have also been appreciated. The Post-Keynesian Pricing Theory including the one based on mark-up can be fitted into their framework, especially into the Sraffian analysis. The book ends up with a brief reference to tentative solutions to minimise the instability problem in a country's economy.

This small book has much to say on the contemporary and on-going thought processes in economic theory The description has been illustrated with examples, diagrams and figures. It must enthuse all manner of economic theorists to build up models relevant to developing countries of the world.

Navin Chandra Joshi

Rural Economics by I.C. Dhingra; published by Sultan Chand & Sons, 23, Darya Ganj, New Delhi. Eleventh Edition 1988, Price Rs. 30.00.

The book has undergone eleven revisions since its first edition was released in 1982. Written by a faculty member of the Economics Department of Bhagat Singh College, New Delhi, the book has been structured to cover the new syllabus of the Indian Institute of Bankers, Bombay for Part-I Examination It is designed to meet the requirements of students for the paper on Rural Economics. The focus of the book is party on rural development paramenters and partly on credit institutions catering to rural problems. There are 18 chapters in the book dealing with topics such as rural population, labour, poverty and unemployment, rural infrastructure and industry, land utilisation, agriculture and allied activities, green revolution, mechanisation, land reforms, agricultural prices, marketing, exports, rural indebtedness, institutional agencies and rural finance. Since a very large canvas of subjcts, programmes, problems and issues relating to rural sector/sub-sectors has been compressed within 425 pages, the students can get basic knowledge and general awareness about rural economics including the national policy on rural development Serious students interested in in-depth analysis and specialisation need supplement this book by reading advanced publications, various plan documents and official reports.

M.K. Ghoshal

Oil From Forest Trees

The estimated production of Oil from forest trees during the last year was 1.5 lakh tonnes. The average percentage of oil recovery ranges between 12.5 per cent in the case of Sal and 35 per cent in the case of Mahua. Action has been initiated for increasing the collection, processing and development of oilseeds of forest trees.

Performance By Railway Production Units

The major production units of Indian Railways have registered good performance during the first quarter of the current financial year. The performance of Chittaranjan Locomotive Works and Diesel Locomotive Works, Varanasi matched the targets for the period. Production in the Rail Coach Factory, Kapurthala exceeded the target. Production in the Integral Coach Factory, Perambur which was slightly behind target is now picking up and the shortfall will be made up in the coming months.

Chittaranjan Locomtive Works proudced 35 locomotives during this period against the target of 35. Similarly, Diesel Locomotive Works, Varanasi also achieved the target of producing 34 locomotives during April-June, 1990. The Rail Coach Factory, Kapurthala produced 94 coaches against the target of 90. The Integral Coach Factory manufactured 205 coaches against the target of 217. However, there was a shortfall in the production of wheels and axles at Wheel & Axle Plant, Bangalore on account of industrial problems. It produced 11037 wheel sets against the target of 14100.

The output of Maintenance Workshops exceeded the targets. The maintenance output of steam locomotives registered 197 numbers against the target of 195. It was 159 for diesel locomotives against the target of 126 and 79.7 for electric locos against the target of 66.

Revitalisation of Cooperatives

Special emphasis has been laid on promoting cooperatives for the economic development of the weaker sections, particularly women, Scheduled Castes and Scheduled Tribes, fishermen and landless labourers.

The cooperative sector has acquired commanding heights in the field of agricultural credit and marketing, sugar production, dairying, oilseeds, handloom, spinning, etc. The total agricultural credit disbursed by cooperative societies registered a quantum jump from Rs. 745 crores in 1970-71 to Rs. 5442 crores in 1988-89, while the level expected to be reached by 1989-90 is projected at Rs. 7071 crores. The value of the agricultural produce marketed by the cooperatives during the year 1988-89 inereased to a record figure of Rs. 5,416 crores. The cooperatives distributed 35 lakh tonnes of fertilizers which is over 32 per cent of the total distributed in the country. During the same period, cooperatives produced 58 per cent of the total sugar and 20 per cent of the spindlage. There are over 60,000 dairy cooperatives which have covered practically the entire rural area of the country. Significant progress has similarly been made by the cooperatives in the sectors of oilseeds, housing and storage.

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Xibr. Dr. Jakir Hussain

Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana is organising an essay competition open to ladies only.

The subject of the essay is — Girl in Indian Society.

There will be three prizes– Ist prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so.

The last date for receipt of the entries is 25.10.1990.

* TOURISM
* AGROMETEOROLOG
* LOAN WAIVER
yojana
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Development Diary

Special Assistance for SCs

The Central Government has released over Rs. 107 crores to 24 States/Union Territories as the first instalment of Special Central Assistance for the year 1990-91 to provide the required thrust in the programmes relevant for the development of people belonging to Scheduled Castes. The total allocation for 1990-91 under this head is Rs. 215 crores compared to Rs. 180 crores during the previous year.

Herbal Medicine Projects

The Council for Advancement of People's Action and Rural Technology (CAPART) has sanctioned 4 projects on herbal medicine. The objectives of the projects include, setting up of a Central Medicinal Garden for growing Ayurvedic plants, training of village women to utilise the herb and establish regular dialogue with the local traditional health practitioners by organising training camps. The amount released by CAPART during the last three years is about Rs. 42 lakhs. The projects are monitored by CAPART.

Ulsoor C-DOT Exchange

The experimental C-DOT Main Telephone Exchange installed at Ulsoor in Bangalore has reached a loading capacity of 90 per cent by mid— August. It has 15 base modules having a equipped capacity for 4000 subscribers.

The Department of Telecommunications has decided to commission one 10,000 line telephone exchange for the network validation early next year. This exchange will be manufactured by the Indian Telephone Industries and will go through all the normal acceptance testing procedures of the Department.

New Telephone Connections

Over 46 lakh telephones function in the country as per official data. The draft 8th Plan envisages net addition of 52 lakh new connections.

It is proposed to connect all Sub-Divisional Headquarters with the STD network by 1995. About 126 sub-divisional headquarters have been proposed to be brought on subscribers trunk dialling network during 1990-91.

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October 16-31, 1990
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A Tale of Three Cities

Cities are made, not born. But they are there to stay, bubbling with life and becoming, as it were, part of the lives of the people. So much so that one can feel in them the heart-beat of the nation. Indians can, with legitimate pride, boast of their many-splendoured cities, going strong, defying the passage of time. Some of them have hit Centuries. Dr. Damodar Tripathy Narendra Luther and A.K. Biswas peep into the hoary past of Cuttack, Hyderabad and Calcutta and look at them as they are today.

Cuttack : 1000

Dr. Damodar Tripathy

A LATE AUTUMN afternoon. His face was glowing with the radiant crimson setting sun, his mansion canopied with blue interspersed retreating floating clouds, flowers in a riot of colour, birds chanting in his praise in an orchestra and multi-colour fireworks dotting the Barabati sky. Dressed immaculately with river stream mirrors reflecting his side-view on either side, he sat on the majestic Barabati throne. I bowed. "Revered Sir, kindly pardon me for my impertinence. Could I have your age", I enquired. He smiled and replied affectionately, "My dear, I am one thousand years old". Don't get astonished. Your forefathers have lived through me, you are living as the progenies will, to enrich me. Don't you know you are my own self". I almost bounced back, from a sort of reverie and found myself under the open sky on the 'Bali Yatra sands. And the royal person was none other than Kataka (modern Cuttack).

Although Kataka existed much before, it was King Nrupa Kesari, who built a modern cantonment 'kataka' at the bifurcation of river Mahanadi and its main branch Kathajodi in 989 A.D. Since then Cuttack has witnessed many changes, ups and downs, war and peace, prosperity and penury, and cultural developments.

While the historians, archaeologists and experts try to resolve the controversy whether the city is 1000 years old or not, the Cuttack Millenium Celebration Committee has been celebrating the occasion with gaiety from December, 1, 1989 on the basis of the date projected by the British historian, Andrew Sterling.

Age

Sterling's assertion of the age of Cuttack is based on 'Madala Punji', the palm leaf chronicle of Shri Jagannath Temple, kept in the shape of 'mardala' (hence called Madala). Some experts believe that the 'Madala Punji' could provide correct picture of events only after 1568 AD. Before that, the incidents recorded in it could not be taken authentic in regard to the dat While some historians a modern scholars feel the c could be between 700 to 800 yea old, the eminent histori Dr. Krishna Chandra Panigra claimed the city was founded 736 AD, 253 years before the da accepted by the Milleniu Committee. In fact, 'Abina Varanasi Kataka', Cuttack's ancie name, seems to have originat during 7th/8th century AD In t 13th century the city with the sar name existed much earlier and t king only adopted the name at t time of construction of his ne fort at Barabati village.

Involvement

The development of Cuttack h been a story of mutual appreciati of ideas of the rulers and the rul and active involvement of t people in the affairs of the Sta Unable to bear the continu sufferings of the of the peop because of the ravages high floods of the rive Mahanadi and Kathajodi, a comm man, Baimundi by name, one d prostrated himself before th King, and urged him to accept h plan to construct a protective ri around the city to save it fro the flood ravages. The King w proud of this man, who cou think about the welfare of th people rather than his own wel being. Thus started the constru tion of embankments by the King Markata Kesari, in the year 100 AD, The protective ring still exist as witness. Recently, it has bee extended and strengthened

Cuttack has been the life-centr of culture, art, trade and commerce for over centuries The annual celebration of 'Bali Yatra' on the sands of the Mahanadi signifies the Oriya maritime past. The 'Brahmamoorta' of Kartika Purnima witnesses thousands of men, women and children sailing. in multi-coloured boats in the streams of the Mahanadi and the Kathjodi to commemorate the maritime past

Sadhabas of utkal, who were g on the high seas for trade commerce with the islanders li, Java, Sumatra and the ppines. The sky gets charged the chants of 'Aa Kaa Maa '. In the past, traders of a were carrying famous i Bandha silk, silver ware works and other trade items to nt islands and getting mostly s and precious stones back in nge. Links of this past are een in these islands. A tribe d Kalinga (the old name of a) still lives in the Philippines. alth of valuable information be available if research is e on the trade links of ack (a major river port) and ent Orissa with the Eastern ds.

rmony

ing Mukunda Deva added a -storeyed palace to Barabati in 1560. But he could not ect the fort from the onslaught enapati Suleman Kerani, alias Pahad' in 1568. The marks of tha invasion and administration e seen during 1751 to 1803 lly, the Britishers conquered a in 1803 and administered from capital city Cuttack. As a result eing administered by rulers nging to three different s, the population of Cuttack ly comprise three different ions, Hindu, Muslim and tian. The three communities merged in the mainstream of ck. The harmony between munities could be seen in participation in the festivals urga Puja, Muharrum and tmas and mutual greetings ese occasions.

r the centuries, Cuttack d the destiny of Orissa, not hrough administration but because of its dominating nce on commerce and e. It had the distinction of the birth place of Netaji s Chandra Bose and the a Kshetra' of many uished luminaries of Orissa like Utkalmani Pandit Gobabandhu Das, Utkal Gourab Madhusudan Das, Pandit Godanasish Mishra, Pandit Nilankantha Das, Acharya Harihar Das and Biswanath Kar, who through their self sacrifice and dedication rallied the people against the British, to rise above sectarian interest for the national cause and to reform the society for achieving the high status that Oriyas once attained in the past.

Development of modern Orissa had its origin in the momentous decisions taken at Cuttack. The city housed the Raj Bhavan, the Secretariat. The Assembly had its sittings in the Assembly Hall of Ravenshaw College. Many leaders of Orissa hailed from Cuttack. Prof. S.C. Dash in a recent article wrote, "Leaders of Cuttack were in fact leaders of the State. Of the Chief Ministers of Orissa, Dr. H.K. Mahatab, Biswanath Das, Nabakrishna Choudhury, Biju Pattanaik, Biren Mitra, Nandini Satpathy, Nilamani Routray and J.B. Patnaik are residents of Cuttack in their paternal houses or houses built by them." He further writes, ..."Cuttack has been the nerve-centre for some epoch-making decisions which have transformed the face of Orissa. The most important decision in regard to the integration of Native States with Orissa was taken in the Raj Bhavan in Lalbag Kothi on Dec. 4, 1947 at a meeting of 26 Native Rulers presided over by Sardar Vallabhbhai Patel, assisted by V.P. Menon, his secretary, Dr. Kailashnath Katju, Governor and Dr. Mahtab, Chief Minister. This was the first of a series of decisions taken in this regard which helped in obliterating 562 Native States from the map of India. Orissa itself gained by this decision as the number of its districts more than doubled from six to thirteen, thus, increasing its area and population".

Utkal University which was working in the premises of Ravenshaw College has been shifted to Bhubaneswar. But the College completed 100 years by 1968 and celerated its Centenary in 1970. Because of its important contribution, the Radhakrishan Commission observed that Ravenshaw was virtually a university. The college has since been give the status of an autonomous body and will, in due course, become a teaching University. The premier medical college (SCB) and the premier Women's College (SB) are in Cuttack. The High Court, the Central Administrative Tribunal, the Board of Revenue, the Directorate of Industries and the Small Industries Service Institute are also situated in Cuttack city.

Golden Era

The period of the Ganga dynasty, which ruled from Cuttack, could be described as the golden era in the cultural history of Orissa. The noted historian, Dr. M.N. Das says, "It was during the Ganga age that Oriya literature took its concrete and enriched shape. Oriya Script, grammar, idioms, phraseologies, poetic diction and prose styles began to take their clear character as many inscriptions and manuscripts came to be composed, within a well defined territory with a definite language and literature with economic and political stability and with indigenous distinctive traits in spheres of culture, art and religion. Modern Orissa was steadily taking shape during the prosperous Gange era of three centuries." (History and Culture of Orissa, Ed. M.N. Das (1977) p. 99). The King Kapilendra Dev had in his Sanskrit drama 'Parsuram Vijay' introduced an Oriya poem for the first time to give impetus to other scholars to write in the mother tongue. From the prison of Barabati fort came the first ever 'Kavya' written about the masses, a love story involving a girl and a boy from the lower strata of society, composed by prisoner Ramachandra Pattanaik.

In the field of literature, Utkala Dipika, first published from Cuttack in 1866, occupied pride of place. Later 'Utkal Bhashaddipani Samaji' (1868), Utkal Sabha (1877), Utkal Sahitya Sammilani ([illegible]), Observers' Club ([illegible]), all contributed to the development of

Contd. on page [illegible]

Hyderabad: 400

Narendra Luther

THE CITY-FORTRESS of Golconda was the capital of the Sultanate with the same name. In course of time it was over-crowded and the need was felt to establish a new capital city.

Mohammad Quli, the fourth of the Qutb Shahi dynastry ruled from 1580 to 1611 and founded the new city in 1591. A poet, lover and aesthete, he wanted the new city to be "unparallelled in the world and a replica of heaven itself." It was one of the earliest cities anywhere to be built upon a 'green-field' site according to principles of town-planning prevalent in Iran which was then the source of inspiration for the East. Golconda treated it as its 'mother' country in many respects.

Char Minar

The city was laid out on the grid system in the form of a giant double-cross. *Char Minar* was its centre-piece. An east-west road from the fort leading to the east coast port of Machilipatnam existed already. Another road from north to south was made to intersect it at the location of *Char Minar*. This divided the whole area into four quarters. The north-western quarter was reserved for the royal palaces and state offices and the south-western for the residence of nobles. The main thorough-fare was lined with some 14,000 shops, mosques, inns, baths and schools.

Char Minar is a perfect square. Its four minarets rise to a height of 48.7 metres from the ground and are divided into four storeys each. It is one of the most elegant monuments in the country.

At a distance of about 76 metres north of the *Char Minar* was the central plaza called *Jilaukhana* or the guard's square. In its centre was an octagonal fountain called the *Char-soo-ka-houz* (fountain of the four cardinal directions). Over 114 metres from the centre on all four sides were four arches, each over 19. metres high. On the western arch was a gate made of ebony and sandal-wood adorned by precious stones with nails of gold A curtain of cloth-of-gold hung on this gate.

The place area covering about 1000 square metres had over a dozen palaces, a general hospital *(Dar-ul-shifa)* and the *Sarai* (inn). It extended right up to the right bank of the river Musi.

The main palaces were the *Lal Mahal*, the *Dad Mahal*, the *Jinan Mahal*, the *Qutb Mandir* and the *Khudadad Mahal*., The sultan himself stayed at the *Qutb Mandir*. Only women were allowed to attend functions there. *Nadi Mahal* was on the bank of river Musi. It was a resting place for the Sultan and his guests. Because largely of the sack of the city by the Mughals and subsequent neglect, none of the palaces has survived for us to see.

Garden City

The city had vast gardens in and around it. The area of about 23 sq. Kms presently covered by *Bashir bagh*, the Public Gardens, the *Fateh Madian* and the Residency was one long stretch of gardens. Simiarly, on the south, the area between the *Char Minar and Koh-e-Tur* palace where the *Faluk Numa* palace stands now, was also full of gardens. Besides, every mansion in the city had its own vast garden. Some of the palaces had roof-gardens.

The new city was na *Bhagnagar*, after the Sult beloved, *Bhagmati*. chronogrammatic name of new city was *Farkhunda Bun* which in Persian means the s thing as Bhagnagar– the cit good fortune.

The city drew unquali praise from contempo observers, foreign travellers historians. The Frenchm Tavernier, found it 'well built well opened out', and of size of Orleans in Fra Thevenot was struck by the t trees in the gardens. He staye the inn of Nematullah paying rupees per month for two roo He also measured the dista from the gate on the bridge on river to various landmarks of city. He found traders from vari nationalities like the Pers Armenians, Dutch, Portuguese the English living in the city noted the fondness of the peo for toddy Abbe' Carres in t observed a prosperous city wh semed to him "to be the centr all trade in the East." The histo Farishta, (1570-1623) who hads the great Mughal cities like A and Lahore found Hyderabad l of them all.

Mohammed Quli's son-in -and successor, Sultan Mohamr started building the *Mecca Mas* At the time of the laying of foundation stone of the mosc the Sultan announced that ***person who had never*** missed prayers would be asked perform the ceremony. No one of the large invited gather stepped forward. Then the Sul himself laid the foundation st saying that ever since the age twelve, he had not missed any the five daily prayers prescribed Islam.

Aurangzeb in Hyderab

Aurangzeb defeated t Goloconda Sultanate in 1687 Af his conquest, on a tour of inspect of the city, passing by one sev storey palace, he enquired w wonder about its identity guide, Nemat Ali Khan told him

the *Dad Mahal* palace
rting to a satirical pun u:
an, Aurangzeb taunted –
ıer say it is *Shaddad Mahal"*
ldad was the name of a
an tyrant). Nemat Ali Khan
ed with a caustic cool behoving
feated but proud adversary
only people with high resolve
d build such tall buildings !

e city was walled around by
Mughal governor, Mubariz
ı to save it from the frequent
edations of the Marathas.

1687, Hyderabad ceased to be
apital city. The capital of the
an *suba* of the Mughal was
ngabad and Golconda was a
of it. In 1763, the second Asaf
Nizam Ali Khan shifted his
al to Hyderabad. During his
od of 76 years Hyderabad
rienced lean days. After 1763
gan to regain some of its
er importance and glory.
ever much damage had been
to it during that period.

Asaf Jahi Dynasty

Mughal Governor Asaf Jah
me the independent ruler of
rabad in 1724 and started the
Jahi dynasty which ruled till
The important Asaf Jahi
ces are the *Chowmahalla*– a
p of four palaces built
Salabat Jung in 1750,
ing the *Teheran* palace of
ing of Iran – *Khilwat Mubarak,*
Mahal, Roshan Bangla and
ıi Haveli. The last palace was
by the second Nizam. The
sixth and seventh Nizams
born here. It has the world's
st wooden wardrobe-240 feet
because the sixth Nizam
r wore the same dress twice.

th the signing of the Treaty of
idary Alliance by the Nizam
the British in 1798, the
lency was built on the north
e Musi. In 1806 Secunderabad
established as a contonment
he British troops. These two
opments opened the city to
influences from the West.
rceptibly the city stepped
he modern age. The old city
ow confined to the south of
iver On the north, a new
west-ward looking city began to merge extending upto the Anglo-Indian settlement in Secunderabad Thus the dawn of the 19th century opened for Hyderabad, a window on the modern age.

The introduction of Railways in 1874 was another milestone in the development of the city Earlier, the foreign trade of Hyderabad was routed largely through the eastern port of Masulipatnam. The Railways opened two new entreports– Madras in the south and Bombay in the west. It reinforced and accelerated the earlier impact on the political, social and economic life of the city which flowed from the Subsidary Alliance.

Early in the 20th Century, the last Nizam moved to the new city across the river and bought a building belonging to one Kamal Khan. He called it 'King Kothi' to make use of the initials K K which were all over the building.

The floods of 1908 demolished 19000 houses and rendered 80,000 persons– representing a quarter of the population homeless. A programme of reconstructiion and renewal of parts of the old city– the *Pathergatti* area was undertaken. This was implemented through the establishment of the City Improvement Board in 1912 which incidentally, was the first of its kind in the country.

There ws a flush of construction of public-buildings during the rule of the Seventh Nizam (1911-49). The High Court, the Osmania General Hospital, the Town Hall (now the Assembly Hall), the Osmania University, the State Central Library are some of the architectural land-marks of this period. The Salar Jung Museum, through displaying less than half of the varied and idiosyncratic collections of Salar Jung III is the largest one-man collection in Asia and justifably, a great tourist attraction. So are the Venkateshwara Temple, the Planetarium and the Science Museum atop the Naubat Pahad, built by Birla

Twin-Cities

Though called *'twin'* cities, Hyderabad and Secunderabad betray their different parentage. They still retain some of the differences in their character which are fast disappearing.

Integration

In 1949 Hyderabad was integrated with India. This signalled the demise of the feudal era and the inauguration of the democratic age. A popular government came into existence but the link with the Nizam staying on as the tilular head of the state.

The present phase in the history of the city began in 1956 when the country was reorganised on the basis of linguistic states. The former state of Hyderabad merged with Andhra and Hyderabad became the capital of a new and linguistically homogeneous State of Andhra Pradesh.

There was unprecedented growth and allround development of the city after 1956. The population of the city which was 10.26 lakhs in 1951 went upto 21.87 lakhs in 1981. The decade of 1961-71 recorded a growth of 43 7% and that of 71-81, 36%. The city started expanding on all sides. The government therefore notified in 1971 a Master Plan for the planned development of the city and its environs This covers an area of 1536 Sq. Km. as against the city municipal area of 169 Sq. Km. The population of the Hyderabad Development Area was 28.60 lakhs in 1981. It is expected to reach 40 lakhs in 1991 and 60 lakhs by the turn of the Century. In 1975 Government established a statutory body, the Hyderabad Urban Development Authority to implement the Master Plan. In 1981, the Quli Qutb Shah Urban Development Authority was established through an administrative order to concentrate on the development of the old city. Due to diverse developments over the years the 'magnet' character of Hyderabad has only increased. Whereas in 1941 the migrant element of the growth in population was 11.6%, it increased to 28.21% in 1981. It is significant that of this element about 28% is from outside

the State and nearly 1% from overseas. It testifies to the popular legend that whoever visits the Mecca Masjid, or drinks the water of Osman Sagar (the original source of water supply for the city) comes back and often settles down here. This also explains the cosmopolitan character of the city. Practically every linguistic group of the country has a sizeable representation here.

In 1981 there were over 4,37,450 households in Hyderabad and about 3,42,000 residential houses— many of them 'katcha'. About 50% of the households belonged to the weaker sections earning upto Rs. 350 per month. A study by the Hyderabad Urban Development Authority in 1986 estimated a shortage of 2.10 lakh housing units by 1991. It indicated that 40,000 units would have to be constructed every year to wipe out the shortage of housing.

In the city, prior to 1956, there were only 10 large and medium scale industrial units with a capital outlay of Rs. 7.66 crores and employing about 10,000 persons. In the small-scale sector there were only 131 units. Now there are 115 large and medium units with an investment of Rs 80 crores and employment of the order of 75,000. The Central Public sector both in the civilian and defence sectors has a good presence here. The service sector dominates the employment scene accounting for 69.49% against 26.76% in the secondary sector and 3.82% in the primary sector. Considerable investment in the *fields* of education an health by the government has lately been supplemented by private *sector*. The number of motor vehicles which in 1939 was 2772 increased to 1.05 lakhs in 1981 and is now 3.4 lakhs out of which motor cycles alone account for 2.73 lakhs. Hyderabad also boasts of the largest number of cycles in the country.

Once known for its diamonds— including the famed *Koh-e-noor*, today Hyderabad is a flourishing market for grading and piercing pearls.

Training Capital

Because of its central location, climate, cosmopolitan culture and comparatively congenial industrial relations, the city has attracted considerable investment in different fields. One of them is training and research. Hyderabad is today called the training capital of India.

One of the factors responsible for the prosperity of the city is the large number of NRIs. They are spread over in West Asia, U.S., Canada and England. Most of the Hyderabadi *N.R.Is.* in West Asia are low-tech and semi-skilled persons. In view of the continuous traffice, Hyderabad airport operates direct flight to West Asian destinations.

In the last 30-40 years, the face of Hyderabad has changed beyond recognition. The Greek Philosopher Heraclitus observed that you can't bathe in the same river twice. The pace of development in Hyderabad is so fast that it can be said that you can't visit the same city twice. The sky-line of the city is forever changing.

The general growth has also brought in its wake its paradoxical by-product, the growth of slums. Every sixth person in Hyderabad is a slum-dweller. While vigorous and innovative programmes of slum removal and developm[ent] have been pursued and [the] number of residential hou[ses] doubled between 1961 and 19[..] the slum population does n[ot] seem to show any sign [of] diminishing. A major programm[e] of slum improvement was initia[ted] in 1988-89. It is being finalised [with] the British Overseas Developme[nt] Authority and entails assistance [of] Rs. 35 crores over a period of fo[ur] years aimed at improving 3[..] slums.

According to the Germ[an] architect, Jan Pieper, the decree [of] the father of the city that it "shou[ld] be a replica of heaven" was no[t a] mere figure of speech but w[as] intended to be taken literal[ly]. Pieper has tried to prove, wi[th] reference to the chapter and ve[rse] of the Holy Quran that the physi[cal] features of the original city c[orrespond] correspond to those of the mythi[cal] Islamic Garden of Eden. It see[ms] to be a fanciful interpretation, b[ut] serves to make a point-Hyderab[ad] was once beautiful.

Hyderabad can hope to have t[he] best of both the worlds. Wh[ile] catching up with the rest of t[he] world, it can still justify t[he] wishful description of its founde[r] 'a city unique in the world and [a] replica of heaven on earth.'

The author is noted writ[...]

Calcutta 300

A.K. Biswas

IT IS NOT easy to write of Calcutta's visual charms in the usual, pretty picture post card manner. The city does not encourage the casual sightseer. No other city yields less easily to comfortable generalisations. If New Delhi is a planner's paradise and Bombay is too commercial, what of Calcutta— poor, chaotic, frenetic, intellectual Calcutta, which reveals itself only on prolonged acquaintance ?

Above all, the city cannot be taken for granted. Surprises, pleasant or otherwise, are a way of life. The chance visitor has no reason to be pleased with the many negative aspects of life here. But then Calcutta and its citizens have never spent sleepless nights over the sentiments of the average pleasure seeking tourist.

The more important thing is that Dominique Lapierre is concerned about the city and so is Gunter Grass, although more negatively. John Kenneth Galbraith has expressed his appreciation and so has eminent journalist Trevor Fishlock, even as they took full note of the many warts on the scarred face of a lively, pulsating city. Official efforts to put Calcutta off tourism brochures have always failed and the city has continued to receive critical attention at the highest international level, more than any other Indian city.

Dead, never

Only a former Prime Minister took a step wrong, describing the city as 'dying'. It was a factual as well as metaphorical error. Call it satanic, call it hellish — Calcutta has taken all such epithets in its stride and has continued to carry on unconcerned— dead it never was and never will be.

A tercentenary is as good a point in time as any to take stock of a historical personality, an event, an epoch, of a city. In its 300th year, one finds that projections for the future of calcutta are unusually bright, even in the medium term, while the present is very dismal indeed. This is yet another paradox that needs to be analysed more fully.

At 300, Calcutta is the youngest of the major Indian cities. Delhi is several centuries older, as is Bhubaneswar. Even Hyderabad, Madras and Bombay are older, by at least 100, 50 and 30 years.

This is certainly not apparent, as one sees the slums in east or central Calcutta, which are less extensive, but every bit as ugly and noisome as the Bombay chawls and Delhi jhuggis. But appearance can be deceptive. Calcutta does not disown its poor, the majority of whom are incidentally not from West Bengal at all, in the manner of New Delhi When the British recently granted as a token of their goodwill 30 million pounds for the city's tercentenary, the money went after much grumbling, to finance slum development projects.

The Calcutta slums where 30% of the people live, (compared to 50% in Bombay), have received an investment of at least Rs. 200 crore over the past decade from the Calcutta Metropolitan Development Authority (CMDA). They are served with running water, electricity and pucca structures, unlike elsewhere. Above all slumdwellers are not routinely evicted by armed policemen backed by bulldozers. Amidst all Calcutta's overcrowding and filth, it is such facts that shed light on the essential character of the city. The average Calcuttan earns Rs. 2 to every Rs. 3 earned by his Delhi counrterpart. However, odd as this may seem, the money stretches longer in Calcutta, because the price line is definitely lower, helped by rapidly increasing production of fresh fruits, vegetables, fish and eggs in the neighbouring districts over the years. Because there is no effort either to pretend that the poor do not exist or to throw them out at the first opportunity, the poor feel human and Mother Teresa was able to do so much of her humanitarian work here.

But as of today, most of the indices of living are negative. Roads are narrow and always being dug up, power failures are scandalous, heavy rains cause waterlogging. The city with its 8 million people is coming apart at its seams, with only 6% of the space devoted to roads, compared to nearly 25% for New Delhi. The citizens too are apparently not very concerned about their civic duties. Houses are often without any coat of colour on the outside. There are heaps of uncleared garbage, hospitals hardly function. The collapse of local self government is near total when it comes to provision of civic facilities. There is a vague demand to 'nationalise' the city meaning that the Centre should take over its responsibilty. But typically, no one seems to know how things would change after the takeover. The problem with Calcutta is not lack of money, but an absence of work culture.

Brighter Side

And yet wonder of wonders, indicators for the future in the 300th year are all positive, even highly positive. The state is poised on the threshold of a long awaited industrial revival. Durgapur and IISCO, (Burnpur) are scheduled to receive around Rs. 8000 crore on modernisation and expansion; the Haldia Petrochemical Project would bring an investment of Rs. 3000 crore; Bakreswar Power Project would cost Rs. 1000 crore, and so would the projected

expansion of the Calcutta Electric Supply Corporation's generation capacity; the DVC would invest Rs. 8000 crore at Mejia; and a similar amount would be invested in a second mint for West Bengal. The ports of Calcutta and Haldia are also being modernised. The Tatas plan to develop Kharagpur as another Jamshedpur. Telecom and other new units are scheduled to come up at Salt Lake.

This means that the city would remain the hub of commercial, industrial and economic activity in the eastern region for years to come, ending its decline which lasted from around 1970 to 1990. In between, the state suffered from the excesses of the Naxalite agitation, labour militancy, and above all industrial stagnation and flight of capital. Now the times are changing, and revival is certainly on the cards, with the city remaining in the crucial centre of a long industrial corridor stretching from Kharagpur and Haldia in the south to Durgapur– Asansol in the north. The next decade should see economic growth accompanied by consolidation.

It is no wonder that the Hyatt chain of international hotels and the Ambassador group are looking for space within the city to set up new hotels, only a couple of years after the Taj Bengal moved in. There is a definite revival of corporate interest in the city's future. The so called five star culture is neither as readily apparent or aggressive as in Delhi or Bombay, but the five star hotels have never complained of a lack of customers over the years.

And for Tourists

So much then for future prospects.This is not to suggest that the average sightseer should not visit the city. Yes, there is plenty to occupy the casual tourist as well. Nature buffs should be happy with the Botanical Gardens, which Bishop Heber once described as "the most beautiful spot on earth"; right at the heart of the city there is the vast, unspoilt expanse of the green maidans which dwarf Delhi's boat club lawns; there is a planetarium, an aquarium, a horticultural society, India's most comprehensive museum, and the zoological garden. There is the strand along the river Hooghly which could do with better maintenance. There is Asia's largest (capacity 1,50,000) stadium at Salt Lake and the second largest cricket ground at Eden Gardens (capacity 1,00,000). There is the Victoria Memorial, the Governor's House, the Pareshnath Temple, the St Paul's Cathedral, Nakhoda Masjid, houses where Clive and Hastings lived as Governors, Tibetan, Chinese and Armenian restaurants as well as Greek and Portuguese churches and a synagogue ...one could go on indefinitelv

For making short trips from the city, one could go to the Sunderbans, the world's largest natural mangrove tropical forests, or to Sagar Islands to see the confluence of many rivers in the Bay of Bengal.

All in all, a visit to Calcutta is apt to be rewarding in that the visitor would carry with him complex memories and impressions, evoking both his admiration, wonder and revulsion, so different from a routine trip to other places. However, for those interested in scenic beauties and charms there is always the Himalayan range at Darjeeling and the beaches of Digha.

At a time when Calcutta was described as a "dying" city," it was actually in the process of acquiring what was equivalent to an additional lifeline for itself– the metro railway. The 16 kilometre long underground stretch of railway from Tollygunge to Dum Dum is not yet complete. Already however, the 'tube' is the pride of the city, perhaps of India as well. Experts from all over the wored praised the Calcutta tube for its remarkable functional efficiency, smoothness and cleanliness, not qualities normally associated with the city. The 'tube' has taken nearly 10 years to build, but the agonising wait has certainly been worth it. The city, the capital of British India from 1773 to 1912, still felt hurt by its loss of prestige sometimes, and the 'tube certainly provided much needed salve.

Calcutta's creative and intellectual character need not be laboured. Suffice it to point out, even at the risk of being branded a chauvinist, that India's Nobel Lauureate poet, Tagore, best known film director, Satyajit Ray, noted musician Ravi Shankar, best known dancer, Uday Shankar, prominent economist Amartya Sen, and eminent intellectual, Nirad C. Chaudhury have all lived or worked for years in Calcutta. So had swamy Vivekananda and Sri Ramakrishna. If Tagore wrote the National Anthem for India and Bangladesh, a unique honour in itself, Bankim Chandra wrote India's National Song. Having said this, it must be admitted that of late, literary, musical and cultural standards generally in Bengal have gone down considerably, not in terms of Indian, but by its own once high standards.

The author is a Journalist

The article, "Benefit-Cost Analysis of a Social Forestry Project: A case study" published in the September 1-15, 1990 issue of YOJANA was jointly written by B.K. Patnaik and Dillip Ray. The name of Dillip Ray, Project Economist, Orissa Social Forestry Project, was inadvertently left out in the published article. The slip is regretted.

Editor

Tourism Industry Needs Boosting

Navin Chandra Joshi

Inspite of its great potential, tourism industry has not been able to make much headway in our country because of lack of a coherent policy. The author calls for widening areas of interest, creation of more tourist destinations and improvement of the infra-structural facilities. He welcomes the move to allow foreign airlines to add to their fleet of passenger-cum-cargo combination.

'VISIT INDIA' campaign will launched by the tourism stry in collaboration with the n Government in the year during which over two n foreign tourists are expected sit the country. As such, the tional stereotyped image of as a cultural destination is pted to be replaced with a vibrant image of diversified m product as efforts are now made by the Government to ct the country as the ation of the Nineties.

emphasis during the m year would be to project tourist destinations and te adventure tourism. The ility of the country as an all ar round destination will e focussed by the Tourism Ministry. As such, 18 extension circuits have been identified in consultation with State Governments and the travel industry. These circuits are connected with the existing circuits, which are already well-known the world over and would need little effort to promote them.

As many as 46 festivals have been identified for promotion during the tourism year and a calendar of these festivals has been drawn up for this purpose. These festivals seek to promote new concepts based on old traditions which needed to be popularised Tourism Department is also seeking to liberalise procedures to ensure smooth flow of tourists. The measures being taken include simplification of *visa* procedure, creation of a separate cadre of immigration officials and liberalisation of air chartter guidelines

High Tariff

In fact, the open sky policy of the aviation sector with regard to charters from abroad and introduction of air taxi are two positive steps aimed at making good the shortcomings of the existing facilities. However, the prospects of relief coming in the form of air taxi may not work as most of them have fixed tariff so high that there are less takers at that rate. Against Rs. 10,000 to Rs. 16,000 per hour charged by Vayudoot for 19 to 40 seater plane, private companies are asking for Rs. 30,000 and above for ten-seater planes.

For improving surface transport, coaches are being imported from abroad on one time basis. But then, the states' attitude to taxing road transport agencies is such that operators are finding it economically impossible to run air-conditioned buses. This approach is in direct conflict with the states' desire to attract more tourists. It reflects not only their confused thinking but the Centre's lack of direction.

While the infrastructure leaves much to be desired and the Punjab and Kashmir situations are not conducive to attracting tourists, a serious hurdle is posed by the shortcomings in the transport sector. The Government, however, seems to be blissfully unaware of the adverse trends even as the industry is the single largest, earner of foreign exchange with the least outflow. The present estimates show that foreign exchange earnings from tourism can be increased to about Rs. 5,000 crores per annum (at 1986-87 prices) by the year 2000 A.D.

Since maximisation of foreign exchange earnings has become crucial in view of the resources crunch faced by the country, it is necessary to make efforts in all directions for boosting tourism. While a new body called 'India Convention Promotion Bureau' was recently set up, the Indian travel industry now faces the challenge for promoting India as a

destination for international conferences and conventions.

The National Committee on Tourism (1988), constituted by the Planning Commission, recommended some fiscal and monetary incentives to encourage private sector investment in tourism, granting export status for the travel trade and giving the State a reduced role in tourism. According to the committee, it is realistic to aim at an annual growth rate of seven per cent in the international tourist arrivals during the Eighth and the Ninth Plans. If achieved, this will increase tourist arrivals to about three million by the year 2000 A.D

Indeed, if tourism has to grow, the centres of attraction need to shift. For example, India's winter should be put to good use by expanding facilties for snow-and water sports. Capacity constraints in the civil aviation sector are now being looked after by adding additional aircraft but still for catering to three million tourists by 2000 A.D. it will be a tough task It is, therefore, in the fitness of things that the Ministry of Civil Aviation has taken a decision to place the 'open sky policy for cargo operations on a permanent basis in order to facilitate cargo carriers to make their investment decisions as also undertake commitments on a long-term basis Now the Government will also give favourable consideration to foreign airlines who may wish to operate additional passenger frequencies to India provided such additional frequencies are operated by passenger-cum-cargo combination aircraft on a permanent basis Presently, 11 destinations in India are being operated under air charters from abroad More tourist destinations are being liberally added. Also, the restriction for operating between the point of arrival and the point of departure within India in the domestic sector is being abolished. Now the charter planes will be allowed to operate in the domestic sector in all the destinations. The Government has also abolished the restriction of air taxi operations to only 55 specified airports in the country Air taxis will now be permitted to operate in all the airports in the country.

It was only recently that the Union Government drew up plans for setting up a Tourism Development Finance Corporation (TDFC) with a view to creating adequate tourism infrastructure with active participation from the private sector. An important concession given from 1988-89 was the extension of Sections 80 HHC and 80 CC of the Income-Tax Act to hotels, tour operators and other specified tourism related activities. Under the provisions of the former Section, 50 per cent of the income attributable to the foreign exchange earnings of hotels, etc , is allowed as deduction straightaway For the remaining 50 per cent, the benefit of tax exemption is available to the extent that income is taken to a reserve fund for investment in tourism industry The later Section gives benefit in respect of investment in equity for new capital issues by tourism industry

Now there is a proposal to permit foreign equity investment of even 51 per cent to attract multinationals for setting up hotels in India. At present, Delhi alone requires 2000 more five-star hotel rooms Unfortunately, however, from time to time some controversies have been surfacing within the industry, doing much damage to the image of our capabilities in handling the traffic One bone of contention has been the revision of room tariffs by all the major hotel chains in the country. The travel agents and tour operators have been opposed to any revision on two counts. Firstly, they feel that the revision is uncalled for because the hotel tariff in India is already on the high side and secondly, frequent revisions create serious problems when bookings are done in advance. The Tourism Ministry, which has to regulate the trade, has also been wavering in its decisions. Surely, if tourists are asked to pay more on landing here in india, it gives adverse publici[ty] to India as a destination.

Room tariffs in big hotels [in] India were reasonable upto 198[6] but they rose sharply in 1987 an[d] 1988 The increase has been of th[e] order of 30 per cent. It woul[d] therefore, be desirable to set up a[n] expert committee to go into th[e] prospects and ramifications [of] hikes in hotel tariffs in futur[e] before any further damage to th[e] industry is done due to intern[al] quarrels and the consequen[t] damage done to the servicing an[d] facilities offered to tourist[s]. Meanwhile, some scheme [of] subsidy or other measures b[e] devised to offset the tax element i[n] hotel construction project cos[t]. Also, a policy decision is require[d] to ensure the availability of land a[t] concessional rate, financial back up and other promotion[al] measures including review [of] restriction on minimum distanc[e] from the high tide line fo[r] establishing beach resorts

To conclude, it is distressin[g] that India has not managed to lur[e] a greater share of tourists notwith standing the absolute increase i[n] travellers to India over the last fe[w] years. By and large, this has bee[n] the case because of the lack of [a] coherent policy on tourism Th[e] objective of tourist industr[y] should be to open the country an[d] to create thereby better under standing amongst people o[f] various countries. Also, th[e] touristic infrastructure helps i[n] over-all development of th[e] national economy

India presents bountiful and abiding attractions for the tourist traffic from all parts of the world A new environment needs to be created, while new packages for travel and sight-seeing, enter tainments, etc , may be devised Air services need to be revamped and so also the customs and immigration facilities which continue to be formidable for foreign visitors. □

The author is a teacher in Economics

Safe Drinking Water— A Dream Come True

The UN designated International Drinking Water Decade comes to a close this year. The article reviews the progress and sets out the priorities.

MANY PEOPLE take drinking water for granted. This life sustaining element around which civilizations grew covers three-fourth of our planet. But only one per cent of this is available in rivers, lakes, underground reservoirs and atmospheric moisture for use of mankind

The picture of the distribution of the available drinking water is all the more dismal. In the developing countries protected water supply facilities are available to only 29 per cent of the rural population. In India, this figure is 31 per cent. There are 1.2 billion people lacking this basic need Eighty per cent of all diseases in developing countries is related to poor drinking water and insanitary conditions.

The future scenario is even worse Global consumption of water is increasing by leaps and bounds every day. Irrigation is further lowering the water table and increasing pressure on both rural and urban supply of this finite source. In many countries population is growing faster than he water that is being pumped, cleaned or protected.

There is nothing abstract about water It is there or it is not. It is safe or it is not People thrive on clean water or suffer in its absence. It has now become not only an environmental issue, a health issue, a women's issue but also an international political issue

It was against this background that the United Nations declared his decade as the International Drinking Water Supply and Sanitation Decade with the aim of providing clean and adequate drinking water to all human beings At the fag end of the decade, it is only quite natural, that Governments and concerned agencies review the progress made in this regard

India redefined its strategy in relation to the UN declaration to meet the challenge and formed an Apex Committee at the national level to go into the details After a considerable amount of exercise, it was agreed to have 100 per cent coverage of the population by year 1990-91 for rural water supply facilities. High priority was given to the rural areas because of the existence of a number of problem villages The problem villages may be defined as villages where the source is at a distance more than 1.6 kms, more than 15 metres in depth, 100 metres elevation difference or affected by biological or chemical contamination

These water sources include both the traditional and conventional water systems. Traditional systems comprise of dug wells, ponds, springs, tanks etc. whereas conventional systems include bore well, hand pump, piped water supply schemes, gravity-fed schemes and water harvesting through roof-top catchment. Non-availability of drinking water from these systems can either be due to natural phenomenon – flood, drought or mineral contamination-physical, chemical or bacteriological

Phases

The programme to provide water to problem villages has been pursued in four phases· 1947-69; 1970-80; 1980-85, and from 1985 onwards. The objective of the first phase was to provide drinking water to villages from surface sources or from dug wells. A conceptual change marked the phase-two by way of identification of problem villages and utilisation of ground water by installing deep hand-pumps. In 1972, the number of identified problem villages was 1 53 lakh Later, stricter identification standards were applied and by the end of April, 1980, the figure of problem villages had risen to 2.32 lakhs. During this period, an amount of Rs 844 1 crore was set apart and about 1.82 lakh villages were provided with drinking water.

Phase-three was launched in the wake of the UN Water Conference and the financial allocation was increased to Rs. 2457.63 crore. While no less than 1 92 lakh villages were provided with water supply by the end of the Sixth Five Year Plan, it was found that 1.61 problem villages remained uncovered. The need was for a sustainable source, improvement of traditional sources, proper water monitoring, mobilisation of scientific technology inputs and their applications.

National Mission

It was in response to these requirements that the National

Drinking Water Mission (NDWM) was launched in 1986. The main objectives of the Mission were to invest the programme with a sense of urgency, to pool in science and technology inputs, to tackle problems of water availability and quality, to bring in a sharp management focus and to create a model of coordinated action to promote an integrated approach to water management The programme aimed at total coverage of all problem villages, focussing on quality, through a network of testing laboratories, removal of biological and chemical contamination and promotion of rain-water-harvesting and water conservation

Today, Remote sensing and Satellite imagery are being utilised to locate water in difficult areas Scientists of national level research laboratories work in this field with water engineers to solve problems in geo-hydrologically difficult terrain. Deflouridation, desalination and excess iron removal plants have been installed. Solar energy has been tapped to pump water in certain areas. Inter-sectoral effort has been emphasised. Water and health agencies have worked together to remove the scourge of guinea-worm, which has now been almost eradicated Hundred laboratories have been set up in the country as the water quality testing infrastructure Most of these labs have become operational.

Due to intensified efforts, only 8,439 villages were left in April, 1990 Over 85 per cent of the population has already been covered fully and 13 per cent partially. Still 1 2 crore people are to be provided safe water, for which efforts are under way

People's participation and an enhanced role for women have now been identified as the key to successful management of the programme. In many parts of the country, hand-pump maintenance is now done by hand-pump mistries, who are trained community volunteers In some areas, even women have been enlisted as hand-pump mechanics. Last year 24 women were trained to maintain and repair the handpumps. Though many of them are illiterate, it is quite apparent that they are fully capable of the task. People and voluntary organisations have joined hands in all related activities. At present, 144 non-Government organisations are collaborating with the Government on Rural Water Supply.

Water Harvesting

As a cost-effective method of providing adequate and acceptable quality of drinking water on a sustained basis, the Mission placed emphasis on water-harvesting Experience has confirmed that the cost of water supply can definitely be reduced if the sources are augmented by rain water harvesting through improved traditional structures. In many hill regions drinking water is scarce though rainfall is considerable This is because of a lack of ground water re-charge, increased surface run-off due to deforestation and lack of structures to prevent the run-off Such structures are being encouraged in Mizoram, Meghalaya and other parts of the North-East, as well as in States like Orissa, Karnataka, Gujarat and Rajasthan. Rain water harvesting, it has been found, could provide a sustainable source for a reasonable period.

Sanitation

However, the other aspect of the current decade— rural sanitation— lags behind considerably Rural sanitation was included in the Minimum Needs Programme from 1987-88 A Centrally-sponsored programme was launched in 1986, but was unable to create any impact The reasons for this lack of success are valid even now, which include low response from the target groups, inadequate infrastructure to monitor and implement the programme and inadequate financial outlays.

To overcome these weaknesses, the programme is expected to adopt an integrated village approach instead of groups, towards total sanitation in the Eighth Plan. The target for coverage would be 15 per cent of the rural households with Government funds under the Rural Sanitation Programme. In addition, a ten per cent coverage is expected to be achieved by mobilising private resources with the involvement of voluntary agencies and women's organisations

To assess the results of various programmes for providing better water and sanitation facilities, a market research organisation conducted surveys in eight States at the behest of the UNICEF It was found that traditional open dug-wells continue to be the primary source of water for all purposes The hand-pump comes a close second, except in West Bengal, where it is the primary source Nevertheless, hand-pumps have brought water closer to homes and had ~~cut~~ down the time and effort needed to collect water.

Another finding of the survey was the persisting public ignorance on effect of water on health Only 10-18 per cent of the people are aware that bad drinking water causes diarrhoea, stomach disorders and cholera. Communication efforts must be oriented to redefine cleanliness to include one's living environment. Group pressure needs to be built up in village against individuals and households not adopting low-cost or no-cost sanitation facilities Sanitation programme implementors need to capitalise on growing motivation for latrine adoption by focussing on crowded villages and women's groups

Though there is no denying the fact that considerable work has been done during the last decade, the fact remains that a large segment of the global population must struggle to get water and then worry whether it is safe to drink. To make the dream of safe water come true, the basics are a strong political will, acceptance of society goals and self-reliance and the training and involvement of women □

Role of Agrometeorology in Agricultural Development

Dr. Jagdish Bahadur, Dr. L.S. Rathore and Dr. R.K. Datta

The article outlines farming systems for Indian landmass vis-a-vis the global farming system pointing out that about 70% of Indian population is engaged in agriculture as against 50% of the global average. It also highlights the role of the National Centre for Medium Range Weather Forecasting (NCMPWF) which aims at evolving an efficient agricultural farm management system keeping in view the effective resource utilisation and conservation aspects of a given agroclimatic region.

AGRICULTURE IS the primary ccupation of human activities. It epends on the climate which has dominating influence on the ormation of soil and the growth f plant life. The crop plants are e result of a number of teracting influences, sociological, onomic and technological No op attains prominence in any ricultural system unless it is lapted to the prevailing climatic nditions Domesticated crop ants, being less hardy than tural vegetation require human lp for their survival and oduction efficiency.

The data given in following ble compare the global farming stem with those of Indian subntinent. What is striking is, as h as 67 per cent of the Indian population is engaged in agriculture as against 47 per cent in the global context With about 2 5% of total area, its cereal production is about 10% of the global production but the average yield per hectare is lower by 60% In spite of that, it is noteworthy that Indian agriculture still contributes about 40 per cent to the national income and 35 per cent of the total exports from the country. (Table-I)

From the analysis of the record of crop yield data, it is noted that 50% of the year to year variations are accounted by climatic factors only Thus weather conditions play a major role in significantly affecting the crop production

The crop production being highly dependent on weather and its variations lead to the birth of a new field of science i e agrometeorology Agrometeorology is an applied science blending all complexities of agriculture with meteorolgy both of which are inter-disciplinary It deals with both qualitative and quantitative relationships between the weather conditions and the agricultural production. In general, agrometeorological services are concerned with various aspects of farming, ranching, forestry including transportation of materials required for production and the produce for distribution among consumers The weather has both benevolent and malevolent effect on crop. The destructive meteorological phenomena depending upon rainall, termperature, radiation, winds, and humidity affecting crops could be broadly described as follows (Table-2).

Large economic benefits could thus accrue by efficient use of resources including climatic aspects and other management inputs for enhanced agricultural production as outlined in Fig 1 It is widely recognised that the weather-based agrometeorological practices can help in selecting efficient crops for a region, schedules for sowing, irrigation, fertilizer appliction and chemical sprays and provide environmental protection to

Table 1

Farming Systems of India and the World

Characteristics		Global	(%)	India	(%)
1 Land USE (Area in lakh hectares)	Total area	133890	100 00	3280	100 00
	Land area	130770	97 66	2970	90 55
	Arable land	13730	10 25	1660	50 60
	Perm Crops	1000	0 74	30	0 91
	Perm Pature	32140	24.00	120	3 65
	Forests & Wood	40690	30 39	670	20 42
	Other land	43200	32 26	490	14 93
2 Population (in crores)	Total Population	510		82	
	Agricultural	235	47 4	31	67 1
3 Cereal	Total Production (Lakh Tonnes)	17420		1750	
Production	Yield (Kg/ha)	2483		1711	

Source: FAO Year Book Vol 42 1988 (1989)

Table 2

Crop Destructive Meteorological phenomena

Meteorological Parameter	Phenomena	Result
Rainfall		
	– Excessive rains – floods	– Devastation of crops over large areas
	– Scanty rains – droughts	– Devastation of crops over large areas
	– Storm/cyclones/depressions	– Damage or destruction
	– Thunderstorm/hail	– Damage or destruction
Temperature		
	– **Coldwave**	– chilling injury and frost damage
	Heatwaves	Dessicating winds cause stress to plants
Radiation		
	– Defective insolation	– affecting the crop quality and its yield
Winds		
	– **Dust storms**	Physical damage to plants
Humidity		
	Excessively high	– Severe attack of insect pests and diseases
	Extremely low	– Dessication of plants

Fig 1

CLIMATIC ASPECTS

NATURAL SOIL RESOURCES

MANAGEMENT INPUTS

* SOLAR RADIATION
* TEMPERATURE
* PRECIPITATION
* OTHERS

* SOIL, WATER, CROP & ANIMAL MANAGEMENT
* PEST MANAGEMENT
* CROP BREEDING
* WEATHER MODIFICATION
* OTHERS

AGRICULTURAL PRODUCTION
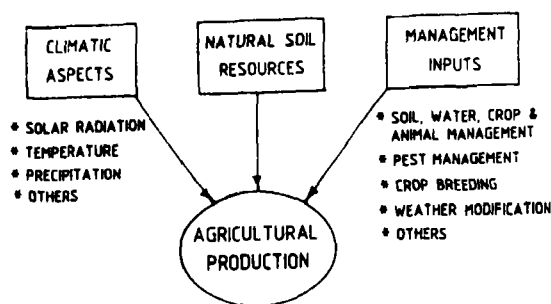
FIG - 1 FLOW OF CLIMATIC INFORMATION FOR RESOURCE MANAGEMENT FOR FOOD PRODUCTION

Fig. 2
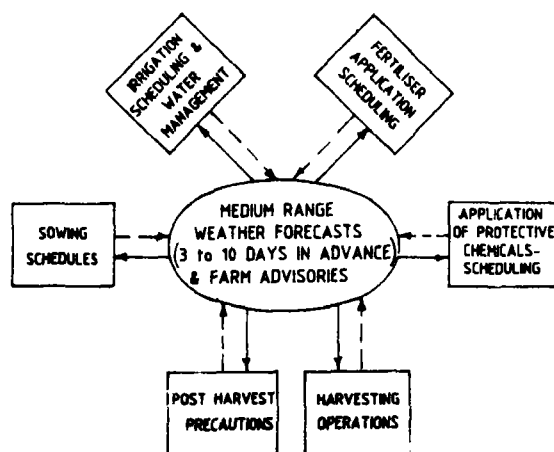
FIG.-2. ENHANCED CROP PRODUCTION THROUGH WEATHER BASED ADVISORIES

harvesting and post harvesting operations (Fig. 2).

Development in India

India was one of the first countires to appreciate the importance of mèteorology for agricultural production. A special unit was set up as early as 1932 at India Meteorological Department due to efforts of Dr. L.A. Ramdas Since the establishment of agrometeorological unit at Pune, various investigators at this unit contributed to some epoch-making research A nationwide network of rgular agrometeorological observatories has been established (131 regular and 94 trial observtories). Lysimeters have been installed at 39 locations; soil moisture observations are made at 44 locations and 270 Pan Evaporation Stations are functioning throughout the country. Agroclimatic atlas was published in 1978 showing the distribution of important climatic elements, normal dates of onset and withdrawal of the monsoon over different parts of the country and agroclimatic zoning of India.

Operational aspects of agrometeorology include the studies of pest and disease incidence, desert locust meteorology, crop yield forecasting models, tentative crop outlook on monthly basis and agromet advisory services and farmers weather bulletins from 17 agrometadvisory services operating at various State capitals A variety of training courses in the field of agrometorology are being conducted for training manpower at various levels.

Research and development include design of instrument sensors and experimental techniques under farm environment at Pune. Rainfall studies including annual, seasonal, monthly and weekly variations have been conducted and rainfall probabilities (10-90 per cent) called Assured Rainfall have been computed for each standard week Analysis of distribution of wet and dry spells have been completed for

selected stations. Based on rainfall the drought indices have been developed and drought prone areas were demarcated Soil moisture data has been analysed to know its depletion below wilting point in the post-monsoon season in different zones of rainfall areas. A model was developed to estimate soil moisture in different layers from meteorological parameters. In addition, a model has been evolved to co-relate soil moisture of the surface layer with those of deeper layers. Agroclimatic classification for regional crop planning has been made Considerable scope however exists for precise identification of homoclimes for improving the cropping pattern and introduction of new crop varieties in different regions Other studies included water requirement of crops and identification of thresholds for occurrence of various pests and diseases

Agrometeorology at Indian Council of Agricultural Reseach ICAR) was initiated with the introduction of coordinated crop weather scheme in 1945 Agrometeorology was identified as a research discipline in 1962 with the establishment of Division of Climatology at Central Arid Zone Research Institute (CAZRI), Jodhpur followed by teaching and research at Indian Agricultural Research Institute (IARI), New Delhi and Jute Research Institute (JRI) at Barrackpore and Dryland Agriculture Research Project at Hyderabad in the 1970s An all India Coordinated Research Project on Agrometeorology was launched in 1983 at Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad with 12 coordinating centres in different State Agricultural Universities and 4 research institutes i e IARI, New Delhi, CAZRI, Jodhpur, CRIDA, Hyderabad and North East Hill (NEH) Complex, Shillong For improving quality of research an INDO-US project on strengthening agrometeorolgocal research to enhance food production was launched in July, 1988 as a part of agricultural research project The programme includes crop weather modelling, agromet data base management system, water production functions of field crops, estimation of evaporation and evaluation of crop coefficients using micro meteorological techniques, spatial dynamics of insect pest and categorisation of crop growing environments ICAR proposes to establish a National Centre for Agrometeorology during the 8th Plan period

Other Research Institutions

Despite the recommendation of National Commission on Agriculture in 1976 that a Department of Agrometeorology should be started at every State Agricultural University for teaching agrometeorology at all levels with financial support from ICAR, the training facilities at the post-graduate level are only available at Punjab Agricultural University (PAU), Ludhiana, Haryana Agricultural University (HAU), Hissar, Gujarat Agricultural University (GAU), Anand, Mahatma Phule Krishi Vidyapeeth (MPKV), Pune besides IARI, New Delhi Operational agrometeorological work has been initiated at PAU, Ludhiana since 1977 and HAU, Hissar since 1984 A Centre for Advanced Studies in Agricultural Meteorology, at MPKU, Pune has been established under UNDP/FAO for developing models for crop monitoring and yield forecasting At International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Hyderabad, models for crop growth and development have been developed for sorghum and other dryland crops Space Applications Centre (SAC), Ahmedabad has conducted agrometeorological investigations on the crop condition assessment using thermal and optical remote sensing and soil moisture estimation and crop discrimination using microwave remote sensings. This Centre has made attempts to develop large area yield models for wheat and rice

Integrated Agromet Services

Integrated Agrometeorological Services will help all stages of farming operations to enhance farm production. The essential components of agrometeorological services are.

- Agrometeorological information for crop planning
- Useful meteorolgical forecast with advisories for current farming operations
- Demonstration of usefulness of weather information for farming activities
- R & D on crop weather relationship for improving site-specific productivity

We have to consider several aspects for effective transfer of agroadvisories to farming community Some of the salient aspects include survey of the present and future needs for specific clientele before considering the development of a new information system The farmers, forecasters and disseminators should determine the information in addressing location specific problems The new information products should be oriented towards local weather and be designed to interface with emerging needs for integrated pest management, energy conservation, alternative energy use, water conservation and reduction of production cost All efforts should be made to collect local data for study of micro and meso scale weather phenomena

As food and fodder form strategic national resources which are governed by weather variations and the weather forecasting needs global meteorological data, the integrated system of agroadvisories has to be primarily a Central Government responsibility. The integrated system should encourage and support individal and alternative cooperative ventures including those of States and other governmental organisations for better dissemination of site specific forecasts. Greater attention

for simplification of advisories has to be given by developing suitable visuals, graphicals and other innovative formats tailored for easy comprehesion of user farming community keeping in mind the existing farm practices and the farmers' habits and behaviour in the society.

National Centre

This is an interministrial collaborative project being operated by Department of Science and Technology. One of the primary objectives of the NCMRWF is to prepare medium range (3-10 days in advance) weather forecasts. For development of agrometeorological services, it is planned to establish 127 Agrometeorological Field Units (AMFUs) to be colocated at National Agricultural Research Project Centres (NARPCs) of ICAR. These units will use NCMRWF output products to prepare and disseminate the agromet advisories to farmers through mass media, extension services, etc. and get constant feedback from them for improvement in the forecast skill.

The existing Agroadvisory Services (AAS) have limitations/ shortcomings on the following counts:

(i) The validity of existing forecast system is 24 hours with an outlook for 48 hours, hence the farmer does not get sufficient time to prepare for the exigent plan of action.

(ii) Current ASS are issuing forecast bulletins for very large areas (i.e. Division of one or more State) which is bound to be of very general nature including broadly the type of weather, likely to be experienced in various Divisions/Districts of the State/States From the farmer's view-point such a bulletin could not be of much use because it does not indicate the steps he should take in the light of such a general forecast, valid for a short period.

Supercomputer Facility

A Cray Supercomputer with VAX gateway and VAX-based frontend processors was commissioned at New Delhi in January, 1989 On-line dedicated and fast telecommunication linkages with the meteorological centres of IMD and AMFUs are envisaged to disseminate medium range weather forecasts for issue of agroadvisories to farmers in different climatic zones of the country. The main objective of the establishment of the Supercomputer Centre is preparation of weather forecast in the medium range in the form of prognostic charts-mainly with output of numercial models consisting of Rainfall, Temperature, Humidity, Evaporation/ Evapotranspiration rates, Sunshine, and Wind.

Field Units

NCMRWF output products will be provided to the AMFUs. Based on this information, interdisciplinary group of Scientists from NARPCs available at AMFU will help prepare weather- based agroadvisories for the region. These bulletins will be disseminated through mass media, extension services, etc. Feedback information from farmers for improvement in the skill forms an integral part of the project.

For operational utilization of data to be collected at the AMFU locations, measurements on plant, weather and soils are needed.

It is desirable to gradually introduce automatic recording of weather data. Automatic weather stations (battery operated) are available commercially against foreign exchange. In our country also the Central Fisheries Research Institute (CFRI), Cochin and National Institute of Oceanography (NIO), Panjim have taken up fabrication of the automatic weather stations. However, the sensors need to be standardized against instruments approved by IMD as per WMO-practices. The possibility of supply of standardized and calibrated sensors needs to be explored in consultation with IMD/NPL and other organisations.

Such automatic weather station should be battery/solar ce operated and portable with a dat logger and printer. Periodi checks against standard equip ment in the observatory have to b ensured. The elements which ca be conveniently recorded throug the automatic weather statio system are Temperature, Humidit Wind speed, Wind direction, Sola radiation, Net radiation and So heat flux and leaf wetness. Evapora tion and rainfall measurements wi however continue to be monitore manually with class A evaporimete and self-recording raingauge

Some common equipment fo specific research projects ar Infra-red thermometer, Leaf are meter (laboratory model), Spectral radiometer, Diffusion Poromete Net Radiometers, Albedometer Line Quantum Sensors wit integrators, Quantum/Photo an Radiation integrators, Neutro moisture meter and Microclimat tower with miniature sensors

Some of these equipment a already available or are in th process of procurement at some the Agricultural Research station The need for supplementing a of the above equipment at ea individual station needs to examined in detail in relation the specific research proble proposed at the station. Gener recommendation for installatio of these equipment at each statio is not needed at this stage.

To increase, stabilize an optimize agricultural productio system, we have not only understand its sub-systems (e soil, water, plant and atmospher but also dynamic inter-relationshi and interaction between the su systems so as to evolve appropria farm management practic reducing the risks to the minimu

The improvement of agrometeor logical services call for a integrated inter-disciplina approach involving various scienti disciplines in the field of so sciences, atmospheric science agricultural sciences and irrigatio engineering.

(Contd. on page 25

Agro-Climatic Regional Planning-II

THERE ARE important implications of the approach based on agro-climatic zonal planning vis-a-vis the planning process in general A few major connected issues that arise for consideration in this context will be referred to briefly in this chapter.

In terms of goals, this project needs to be dovetailed with the goals that are nationally agreed to for achievement in the Eighth Plan and beyond. By way of examples, these may relate to assurance of a minimum per capita availability of foodgrains for our growing population, to ensuring a minimum availability of dairy products, fruits and vegetables in order to improve nutritional status particularly of young mothers and children, to import reduction export promotion targets for particular products (e.g edible oils), to employment generation objectives in the rural areas, or to criteria of long-range eco-system sustainability while planning a more intensive use of our national resources It is clear that these objectives need to be concretely spelt out for the guidance of the agro-climatic zonal planners and the proposals emerging from their work need to be scrutinised for their consistency with such nationally accepted objectives of development policy.

In terms of the policy-frame for operationalising the suggestions arising from the zonal planning exercise, it is necessary to take another look at the policy instruments that could contribute to the achievement of objectives and targets enunciated under this project. These will include pricing policies for inputs and outputs, for imports and exports, for machines and labour and the institutional arrangements for extension, delivery of credit, supply of inputs, and the processing and marketing of output It is through a sensitive use of these instruments that appropriate signals (incentives and disincentives) could be given to the farmers about the direction in which agriculture should move and land use patterns altered in the coming years Ensuring adequate returns to farmers should be an important criterion in this context

In terms of investment priorities and magnitudes also, it would be necessary that the suggestions arising from this project are looked at before final approval in the larger context of the entire Five Year Plan and questions of relative priority in allocation of resources, inter-sectoral consistency etc are sorted out.

The process required for this purpose would call for consultations between expert and elected bodies at various levels This is the essence of democratic and decentralised planning

Within the above broad framework, certain specific issues related to major segments are identified on a *cross-zonal basis.*

Whatershed Development

Integrated watershed development programme is the best available approach for management of land and water resources The multiple benefits, of watershed development are well known: prevention of soil erosion and rainwater run-off; resultant enhancement and stabilisation of crop productions; and optimum bio-mass production, including fodder, fuelwood and timber. Hence, this programme deserves high priority in VIII plan.

The entire Central and Southern Plateau and Hills area is mainly semi-arid tropic with low rainfall of about uniform distribution ranging from 600 to 800 mm In this area, water harvesting is the primary need The shortage of water can be partly corrected by impounding rainwater and augmenting groundwater recharge Under high rainfall situations greater than 1000 mm control of surface run-off leading to soil erosion and sedimentation downstream is the main concern.

The effective way to meet the above situation is soil and water conservation. The best known approach is Integrated Watershed Development wherein alongwith soil conservation measures, implementation of other components of agro-forestry, horticulture, grasslands development and crop production are undertaken in an orchestrated manner. This is a system combining erosion and run-off controlling land management with irrigation wells for lifting groundwater on a sustained basis only to the extent that the annual recharge is sufficient for replenishment of pumpage.

The impact of an Integrated Watershed Development Programme (IWDP) is to be judged in terms of:

- Improvement in resource productivity
- Reduced production risks and
- Increased employment
  (a) directly in physical works
  (b) indirectly in crop production

Special planning to conserve land and water is required for hill regions and has to integrate land reforms aspects with natural resource conservation. The hilly areas of Zones 1 and 2 have two-fold problems, viz, in medium rainfall bench terracing and run-off disposal to prevent heavy soil losses. Another dimension in hills is of proper land use planning where the foothills, mid-elevation and high-elevation areas are to be used for different agriculture, e.g.

foothills can be used for normal cropping, whereas the mid-elevation should largely be confined to horticulture and pastures and in the high hills nor regular cultivation be done but restricted to forests only.

The costing of such work will depend on slope and type of crops to be grown. A target to cover about 1 lakh ha each in Zones 1 and 2 could be considered for VIII plan.

As Integrated Watershed Develoment Programme is based upon multi-disciplinary approach, the organisation implementing this programme shall have to be structured accordingly so that the desired results are achieved

The important fact of integration is the stake on part of beneficiaries covered in a micro watershed. They should feel that this is their programme and they should be involved right from the planning stage ensuring their active involvement

It has been suggested that for structures to be constructed on Government land, which will be benefitting the community, these may be funded by the Government Planting of fuelwood trees on wastelands in upper ridges might also fit into this category Soil conservation, planting of fruit trees and grasslands will be on individuals' fields. Of the total cost of land and water development, a part of it could be met with by the beneficiary, a part through institutional finance and the balance from the Government(s).

Cosidering zones 7,8,9,10 and 13 for IWDP, the following emerges : If a target of 4 million hectares annual is kept, 20 million hecatres could perhaps be covered by 1994/95 and the balance 24 million hectares in the 9th plan.

Problem Soils

Extensive areas in some Zones suffer from soil problems such as salinity, alkalinity and acidity. These problems are natural and arisen out of human intervention. Some soils have natural salinity or acidity due to their formation from basic material having proportionately high clay content and sodium salts. On the other hand because of imprudent use of irrigation water or saline groundwater, secondary salinity develops. All these situations badly constrain the achievement of higher yields posible through the application of improved technology.

These soils need to be corrected Some areas in Zones 5,7,11,12, and 13 have been indentified and corrective measures suggested by the Zonal Planning Teams Some of the Planning Teams have recommended that soil correction programmes should be executed by the Government on area basis without leaving it to the individual beneficiaries. Since such programmes are not as a rule very expensive, financial involvement of cultivators who stand to benefit would be important.

The corrective measures are addition of soil amendments at the recommended dose based on results of soil analysis. Normally addition of gypsum at the rate of 5t/ha for saline/alkaline soils and addition of lime at the rate of 3t/ha for acid soils is recommended The cost of these amendments is not much but it is the transportation of bulk upto the farm gate which is the main cost. A certain measure of subsidy for this purpose might be warranted

Physical target and associated benefits as now worked out are: See Table-2.

The Planning Commission has recently approved a State Government Project for Reclamation of *Usar* Land in ten districts of Uttar Pradesh, 8 of which fall within Zone 5. Such projects, taken up for improving land capabilities and as a system of land and water development, will be eligible for funding under the Jawahar Rozgar Yojana, provided the majority of the beneficiaries are small and marginal farmers

The participation of governmental, non-governmental and voluntary agencies as well as farmers in harnessing and utilising the available resources in the most efficient possible manner will be necessary. Therefore, both formal and informal linkages amongst these will have to be established and maintained. The active participation of voluntary agencies in land development activities will be positively encouraged by suitable incentives and ironing out of procedural impediments Experience with the non-governmental organisations (NGOs) shows that they are better suited to designing projects that take into account local conditions and devising techniques that are often more cost effective. There is need to spread more widely some of these tested technologies suited to prototype situtations, to other

Table 1

Sl No.	Particulars	Zones			(Area-Lakh Ha)		
		VII	VIII	IX	X	XIII	Total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Geographical area	395	370	331	395	196	1687
	Net sown area	174	169	159	189	98	789
	(% of geographical area)	(44)	(46)	(48)	(48)	(50)	(47)
2.	Area needing soil/water conservation measures	158	128	132	158	107	683
		(40)	(34)	(40)	(40)	(54)	(40)
3	Area likely to be treated by the end of VII Plan (cumulative) (assuming 20%)	31	25	26	32	2[illegible]	135
4	Area remaining to be treated	127	103	106	126	86	548
5.	Assuming 20% will be attended by farmers themselves	25	21	21	25	17	109
6.	Balance remaining	102	82	85	101	69	439

Table 2

Sl No.	Particulars	Zones V	VII	XI	XII	XIII	Total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Estimated area under problems soil (lha)	9 91	95 32	4 32	0 37	8 2	118 02
2	Time frame for implimentation (years)	5	25	5	5	5	
3	Cost of work (Rs/ha) (Tentative)	1500	600	1500	1500	1500	
4	Returns estimated as additional yield after soil conservation (%)	30	25	30	30	30	
5	Average yield kg/ha	1993 wheat	743 wheat	1905 rice	727 jowar	996 bajra	
6	Value of additional production per ha (Rs)	1166	363	1985	338	463	

relevant areas. The 'participative approach' of NGOs, in which the end users, i.e. the beneficiaries, are actively involved at all stages of a project from its very inception, facilitates the subsequent adoption of the demonstrated technology by others With the strengthening of Panchayati Raj institutions and devolution of wider responsibilities to them, an administrative framework will become available for undertaking such locally relevant projects. It should be possible also to organise such projects on a cooperative mould.

Minor Irrigation

Groundwater

The zonal analysis of ground water indicates:

1 Most of the Zone 1 is dominated by consolidated formations with groundwater yields varying from 5 cum/hour to 20 cum/hour, and restricted to weathered and fractured zones of secondary porosity. Stage of groundwater development varies from 5 per cent in sub-Zone 1 (J & K) to 24 per cent in sub-Zone 2 (HP).

2 In Zone 2 consolidated and semi-consolidated formations with high yields below 50 cum/ hour occur. The flood plains of Brahmaputra yield large supplies upto 150 cum/hour. Groundwater development is negligible in the entire Zone

3. In all Zones of the Gangetic Plains (Zones 2,4,5 and 6), there are large ground water yield prospects, and fairly thick aquifers extend down to 300 m The water yield from wells varies from 50 to 150 cum/hour The quality of water is good However in some areas salinity has come up due to over irrigation. In Zone 6 groundwater development has nearly reached the limit, but in other Zones it is less than 30% in most parts

4. The Plateau Zones (Zones 7,8, & 9) are mostly dominated by consolidated fissured formations with poor to moderate yields (5 to 50 cum/hour). The stage of groundwater development is poor in Orissa and M.P., with only 4 per cent and 8 per cent utilisation of available potential However, it is more than 19% in Maharashtra (large part of Zone 9). Zone 10 is similar to other Plateau Zones but with limited aquifer yields. Utilisation of potential is much higher in Tamil Nadu (about 40%) but lower in Andhra Pradesh (20%)

5. The area dominated by coastal plains and Ghat areas is having unconsolidated (mainly in Zone 13) to consolidated formation (Zones 11,12 and 13), and hence aquifer yields vary greatly. The stage of groundwater development is 25 per cent in Zone 13, 12 per cent in Zone 11 and about 15 per cent in Zone 12. Saline water is encountered in large areas.

6. Zone 14 has mostly alluvial unconsolidated formations with limited yield prospects. The quality of water is mostly saline and extent of groundwater development is relatively high at about 30 per cent, because of poor rainfall.

A regular programme to sink wells/shallow wells/tubewells should be taken up in Hills and Plateau Regions where the stage of groundwater development is on low key and run-off problem is more acute. In terms of numbers, the largest potential of sinking additional tube-wells lies in Zones 4 and 5. Under the Small and Marginal Farmers Programme (SMFP), a thrust has been given to the programme of sinking wells in these two Zones, but the pace needs to be kept up in Zone 5 and stepped up in Zone 4, with the objective of bringing atleast 3 million ha under well irrigation during VIII plan. A target to sink new wells at the rate of 2 lakh wells each year for plateau regions in Zones 7,8 and 9; a target of 1 lakh wells for Zones 10,11,12, and 13; and a target of about 0 25 lakhs for Zones 1,2 and 14 have been recommended. This programme should be under public/cooperative and private sector as well and liberalised institutional finance should be linked making this a bankable proposition. A suggestion meriting attention in strengthening the groundwater development programme is that the beneficiaries be encouraged to form into groups and financed by the banks for group irrigation. Many a lift and other irrigation cooperative has successfully demonstrated this approach. The other dimension which merits attention is the proper enforcement of regulations in regard to exploitation of groundwater. This would be of urgent importance in some of the Zones (e.g. Zones 6 and 13) where there are already signs of over-exploitation.

The high priority given to groundwater development in recent years will have to be continued. It is expected that a considerable part of the ground-water potential of the country will be utilised in the next decade or so. Special studies will be mounted to develop integrated management systems of ground-water aquifers. Particular attention will be paid to saline areas, coastal belts subject to salinity ingress and other special problem areas to promote optimum conjunctive use. Satellite imagery alongwith further ground surveying will be used to update available information relating to groundwater The existence of groundwater will have to be recognised and the institutional and procedural constraints that inhibit advantage being taken of this development will have to be removed. Where the non-ownership of the land by share croppers precludes their access to institutional credit, a way must be found to overcome this difficulty in cases where the existence of a groundwater market ensures the viability of an individual proposal. Similarly, for the purpose of funding by financial institutions, the viability of a groundwater installation should not be assessed on the assumption that its command is restricted to the holding of the prospective owner if a market for ground-water exists or is possible Where groundwater markets have not developed and any institutional system acts as a constraint, the State will have to play a more direct role in meeting the requirements of small and marginal farmers

Tank Irrigation

Tanks are an important source of irrigation in the Southern Plateau Region and the coastal region of Eastern India. A large concentration of tanks as irrigation sources is in Zones 3,7,10 and 11 (sub-Zones 2 and 6). This system has degenerated over the past decades both in terms of area irrigated and stability in supply due to their silting up, weakening of bounds and weirs and encroach-ment for cultivation. Restoration of these irrigation tanks should be taken up as it has potential of not only substantially increa agricultural production but uplifting of level of living of l of small and marginal farmer

Components of tank restora are:

1 Desilting and using excavated earth for augmen fertility of fields.
2 Strengthening of bunds raising of embankments
3 Afforestation of foreshores
4 Improvement of water cour

The Zonal Planning Teams h suggested tank restoration as of the strategies to augm irrigation in Zones 3,7,10 and 1 order to deal with this program a suggestion is also made develop a suitable organisati frame for implementation programme, maintenance distribution of water, collec water charges etc

Examination of various Plan Team's proposals indicates magnitude of work as under.

Similar approach as in cas tank irrigation to include o traditional methods of w storage in the village will nee be taken up.

Sl. No.	Particulars	Zones				
		III	VII	X	XI	Total
(0)	(1)	(2)	(3)	4)	5)	6)
1	Estimated area irrigated by tanks (1ha)	2 00	22 34	7 30	10 50	42 14
2	Estimated time for complete restoration of tanks (years)	2	20	7	10	–
3	Cost of restoration (Tentative) (Rs/ha)					
	(a) Desilting	2000	2000*	2000*	2000	–
	(b) Complete package	20000	–	–	20000	–
4.	Total cost (Rs – crores)	400	446 80	146	2100	3092 8
5	Present average yield-kg/ha (rice)	1255	763	2012	1905	
6	Estimated additional output @ 40% of avg (rice) – kg/ha each year	502	305	805	762	
7	Value of additional output @ Rs 190/qtl (Rs/ha – Tentative)	954	579	1529	1448	

* The ZPTS have proposed desilting only

Loan Waiver Scheme-Consequences and Possibilities

Dr. Balishter

THE NATIONAL FRONT Government at the centre has decided to write- off agricultural loans upto Rs 10,000. The salient features of the scheme as spelled out in the Finance Minister's speech are: (i) The relief will be available to borrowers who have taken loans upto Rs 10,000 from public sector banks and regional rural banks (ii) The relief will cover all overdues on 2nd October, 1989 including short-term as well as long term oans.(iii) There will be no limit in he size of the borrowers' andholding. (iv) Wilful defaulters who in the past did not repay loans lespite their capacity to do so will e excluded. (v) The Central Government will compensate the ublic sector banks and the egional rural banks suitably for e debts which were thus aived

In addition, the State Government have also been permitted to ntroduce a scheme on the same nes in respect of cooperative anks within their purview ubject to constraints of resources, e Central Government will nsider suggestions for helping e State Governments in plementing the debt relief heme on the same pattern in spect of cooperative credit stitutions under their control.

rowth in Credit Supply

There has been a spectacular e in the flow of institutional dit for agriculture in recent rs The outstanding agricultural vances of all credit institutions reased from Rs. 1272 crores in 1969 to Rs 3703 crores in 1976 and further to Rs 13,999 crores in 1984 The loans assigned by the Primary Agricultural Credit Societies increased from Rs. 17,460 million during 1980-81 to Rs 24,990 million during 1983-84 and loans issued by Land Development Banks increased

> *The author says, the practice of Waiving loans on such a scale will encourage wilful default on the part of most borrowers in future in the hope that such loans may be written off on the eve of the next General Elections. He feels, a more rational approach would be to ensure availability of credit at lower rates to small and marginal farmers and effective implementation of anti-poverty programmes.*

from Rs 36 30 million to Rs 4390 million during the same period The level of agricultural credit of the public sector banks, which stood only at Rs 162 crores in June 1969 reached the level of Rs 40,307 crores by December 1986

Policy makers in India have given special emphasis in giving preference to small and marginal farmers and other weaker sections in providing institutional credit through special programmes. Regional Rural Banks (RRBs) were set up in 1975 to meet the credit requirements of the weaker sections of the rural society. The Reserve Bank of India has been issuing directives to the institutional *agencies to give priority to* marginal and small farmers in advancing loans, thereby increasing the share of institutional credit to the small and marginal farmers. The share of marginal and small farmers together increased from 39 2 per cent in 1978-79 to 45 3 per cent in 1982-83 in case of production credit and from 31 1 per cent to 52 8 per cent in case of investment credit.

Non-Repayment of Loan

It has, however, to be appreciated that it is not only the quantum of credit disbursed that is important but also its timely repayment to ensure a continuing flow of institutional credit over time It is often pointed out that with the expansion of credit, the problem of non-repayment of institutional credit by the farmers has grown and is causing serious concern for the banking institutions. The recovery of agricultural advances by primary agricultural credit societies, land development banks and commercial banks at the end of June 1983 respectively stood at about 59,60 and 52 per cent which within a year declined to 57, 56 and 51 percent by the end of June 1984. Thus the recovery performance clearly brings out the fact that the malady is equally grave in the commercial banks as well as the cooperatives

Rising trend of old overdues

It is noted that 'old' overdues (exceeding 3 years) of commercial banks went from Rs. 130 crores (20 1 per cent of total overdues) during 1978-79 to Rs. 429 crores (35 per cent of total overdues) during 1983-84. These old overdues constitute nearly 8.5 per cent of the outstanding direct agricultural loans portfolio of public sector banks. A micro-level study revealed that about 72 per cent of the total overdues were 'old'

overdues (over 3 years) and only 28 per cent 'current' (less than 3 years). The study further indicated that the extent of 'old' overdues was about 60 per cent in case of small farmers, 71 per cent in case of medium farmers and about 77 per cent in case of large farmers. It was a little disturbing to note that the extent of 'old' overdues grew with the increase in farm size.

The non-recovery of loans in time and continuous increase in overdues severely limits the capacity of the financing agencies to recycle the funds and thus impedes the process of development as non-repayment of loans by a section of agricultural borrowers only means denying the benefits of loan advances to other agricultural borrowers. The lack of revovery also cripples the credit instituions' capacity to draw refinance from NABARD because bank's ability criteria in this respect is now linked with their recovery performance. Thus deteriorating situation in non-repayment of loans has in fact not received adequate attention over the years

Wilful Default

The problem of overdues may be either because of inadequate repaying capacity of the defaulting farmers or wilful default in repayment. The repaying capacity is to be considered by deducting family living expenses from total income. The defaulters having adequate income (i.e. repaying capcity less instalment due) but not repaying the loan deliberately are treated as wilful defaulters, while those, who have no surplus income to repay loan as non-wilful defaulters, generally the medium and large farmers having an influencial position in the locality come under the category of wilful defaulters. They are few in number but have appropriated a lion's share in the rural lending. The Datey Committee in its report submitted in 1974 observed that out of a total of Rs. 377 crores of overdues at the primary level, the wilful default accounted for about Rs. 277 crores, which comes to over 73 per cent of the total. The study conducted at the instance of CALCOB (Committee on Agricultural Lending by Commercial Banks) reported that wilful default accounted for about 42 per cent of the total overdues. Studies conducted by NABARD reveal that large farmers defaulted more than small farmers. A recent study conducted in two districts of U.P. revealed that the proportion of wilful defaulters in a relatively backward district was about 34 per cent while in a progressive district it was about 81 per cent. It further revealed that about 17 per cent small farmers, 40 per cent medium farmers and 89 per cent large farmers were wilful defaulters in the backward district while 66 per cent small farmers, 94 per cent medium farmers and almost cent per cent large farmers were wilful defaulters in the progressive district. The default in repayment of loan in agriculturally beackward district is more because of inadequate repayment capacity, while in agriculturally progressive district it is more because of wilful default. The wilful defaulters know how to connive, manipulate and influence the officials of the lending institutions. Such defaulters may also instigate others not to repay on the assurance that they will help them in case of any difficulty because of such default.

Pressure on lending instiutions

As already stated that loans that qualify waiver may be any where between Rs. 12,000 to Rs. 14,000 crores, which comes to 13 per cent to 15 per cent of the total credit (Rs. 90,000 crores) from the banking industry as a whole as on December 1989. However, the government placed the quantum of waiver as low as Rs. 2800 crores which is hardly correct. The tight financial position and low profitability of lending institutions on loans advanced to rural sector may not justify the waiver of loans, and any move to write-off such loans by deploying public and bank funds may only vitiate the general repayment climate and adversely affect the viability of the credit institutions. Shri R.N. Malhotra, Governor, Reserve Bank of India said "generalised debt waiver would encourage wilful defaulters, to the deteriment of the large body of good borrowers". Waiver of loans may bring relief to the non-wilful defaulters but it would unboubtedly cause bitterness and heart-burning amongst those who have repaid their loans, when they observe that the wilful defaulters, who are generally better class of borrowers, reap the benefit of this scheme.

Identification of Beneficiaries

It is noted that loan waiver scheme would be selective and confined only to identified beneficiaries but methodology of identification of beneficiaries is not yet clear. It has been clarified that wilful defaulters would be excluded from the scheme. But the problem is how to identify a wilful defaulter. Banks may deliberately classify non-wilful defaulters as wilful defaulters in order to lower their losses. It may also be possible in certain cases that politically and socially influencial wilful defaulters may be classified as non-wilful defaulters. It is not understood as to why is there no limit in the size of the borrower's landholding to avail of the benefit of this scheme. If the size of landholding is not a criterion or a material factor for deciding waiving of loans upto Rs. 10,000 then what other criteria shall be adequate for identification of eligible borrowers under this scheme. The size of landholding is the major deciding factor of sooial and economic status in our rural society. It is very likely that big and influencial farmers may get the benefit of this scheme in a large measure and really deserving borrowers may be kept out of the scheme for the grant of waiver of loans. The mere fact that the scope of the scheme has been widened to cover within its ambit all categories of farmers i.e. small,

medium and large farmers, when the election manifesto of the National Front contained a promise only for the small and marginal farmers, provides a ground for such apprehensions.

The government would have to devise a way to identify correctly the farmers who would qualify for these write-offs and ensure that there is no inclusion of ineligible farmers among those identified as beneficiaries. It will be equally important that the agency entrusted with the task of identifying deserving cases, which may be local level government functionaries i e Lekhpal, ADOs and BDOs, should ensure that the really deserving cases may get the benefit under this scheme. A number of studies have reported wrong identification of beneficiary families under the Integrated Rural Development Programme

The merits or demerits of scheme apart, the concept of "Write-off" of productive loans raises a question whether waiving of such loans is the right thing. It implies that the loans advanced for productive purposes are converted into a "Welfare subsidy" through such write offs, putting a severe constraint on the availability of resources for investments The problem may become all the more serious if the benefit of such a scheme in large measure goes to a class of well-to-do farmers who are already enjoying tangible economic benefits in the form of being free from agricultural income tax, higher guaranteed agricultural product prices and input subsidies.

It is important to mention here that the financial health and profitability position of lending instituions is not sound enough to absorb such a huge burden. Ultimately the government has to bear it with the help of Reserve Bank of India and raise loans from the public. The Reserve Bank of India has already cautioned the Government against such a step and pointed out how it may distrub the entire economic system.

It may also be noted that the practice of "Writing off" loans on such a scale will encourage wilful default in future on the part of most borrowers in the hope that such loans may be written off on the eve of the next General Elections If that be so, it will amount to using the public funds for influencing the voters in favour of some political parties or individual Politician, thus encouraging a corrupt practice in elections.

Solution

'Writing-off' of loans taken by farmers for productive purpose may in the short-run, be viewed as a 'solution' to the problem of general indebtedness of farming community but it goes against the principle of motivating the farmer to use these loans for raising their income. The aim should, instead, be to allow the farmers to generate income in the short-run and create opportunities and avenues where they can reinvest the surplus funds in the long-run. A more rational approach would have been to make available more credit at a lower cost to the small and marginal farmers. The anti-poverty programme should be effectively implemented to take care of needs of small and marginal farmers and other weaker sections and it is this section alone which may get the benefit of the Loan Waiver Scheme.

While implementing the scheme, it should also cover the non-wilful defaulter farmer members of the cooperatives and relieve these farmers of the growing debt burden through book transfer entries from year to year ☐

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Crop growth simulation models, changing only the appropriate crop parameters and using sequences of daily weather data as inputs, are required to be developed in the country to investigate the relationship of weather and crop yield variation. The food production should be concurrently evaluated vis-a-vis climatic variations using empirical analysis, decision-modelling, questionnaire or interview surveys so as to make more realistic estimates for guiding economy which is predominantly based on Agriculture.

Some of the institutions are being provided continuous data collection systems to evolve crop simulation models and act as centres of excellence for R&D and manpower development for adopting latest operational techniques in the field of agrometeorology. In addition, some of the agricultural R&D institutions and State Agricultural Universities are provided with precision instruments for micrometeorological observations. The data so collected needs to be integrated with the IMD/ICAR data bases for drawing full benefits.

Continuous recording instruments are being imported for a dozen of research groups to develop dynamic simulation models for crop growth and development. The progress using these gadgets needs integration with the national information systems. What is urgently needed is the availability of Indian manufactured automatic and continuous recording instruments with appropriate testing/calibration and maintenance facilities in various regions.

To make agrometeorological services an important component of the agricultural operation management system, it is important that the farm advisory bulletins are unambiguous, objective and to the point, these need be evolved on location/crop specific basis. The development of computer based expert systems need be encouraged for optimising the production on a sustainable basis. ☐

Loan Waiver: Justified ?

Anil Gupta

The issue of loan waiver is fraught with pitfalls. In addition to reducing the loanable fund, it will create particular problems for financial, institutions getting refinance facility from NABARD. From June 92 NABARD will insist that its client banks maintain 80 per cent annual recovery for getting unfetterd refinance. The author suggests some points to improve the existing situation.

THE GOVERNMENT has decided to accord top priority to agriculture and rural development. This decision has been taken with the object of ensuring social justice to rural poor and agriculturists. However, the policy decision which will have a direct significant impact on the rural credit institutions is the declaration of writting-off of agriculture loans upto Rs. 10,000/-of small, marginal and landless cultivators and artisans. The Finance Minister Madhu Dandavate had mentioned that the final figure of Rs. 2800/-crores (of farm loans of both co-operative and public sector banks) needed to be waived was arrived at by the government considering specific parameters. One of the parameters is that only overdues upto Oct. 2, 1989 would be written-off. Another parameter is the exclusion of wilful defaulters. Wilful-defaulters are the persons having repayment capacity but they are not willing to repay their loans. The Minister also clarified that overdues of both short and long-term would be eligible for waiver stand on October 2, 1989. Now the question arises, is the writting-off of loans a mean for achieving political end or to curb the growing overdue malady ? The answer to this question is difficult to give. But an attempt has been made to forecast the impact of loan waiver in the light of the new schemes and programmes designed for rural credit to be brought into force from 1992.

Recovery Scene

Although there has been appreciable increase in the flow of credit from commercial banks, regional rural banks and co-operative to the agriculture, no perceptible improvement in the recovery of loans has been seen. Recovery of agricultural and rural credit has become a perennial problem A M. Khusro Committee referring to the "disquieting development" in the last few years by way of politicisation of agricultural credit system said, exhortations from political plateform for postponement of loan recovery, pressure on the credit institutions to grant exention or delay the enforcement process of recovery has virtually promoted indiscipline in the recovery process The recovery position as per the another noted Committee has not been impressive. The overall default percentage of recovery to demand was 5[illegible]% of commercial Banks; 60% of Primary Land Development Banks; 57% of Central Co-operative Banks; 57% of Primary Agriculture Co-operative Societies and 48% of Regional Rural Banks as on 1984-85.

The recovery percentage of commercial banks has been 51% by the end of 1989 and thereafter th[e] percentage has gone down. T[he] recovery percentage of Co-operati[ve] banks has remained around 5[0] uptil 1990. Thereafter this percenta[ge] has also reduced. This was [a] becuase of the loan waiving poli[cy] adopted by the present Unio[n] government. These figures indica[te] the blocking of public funds wi[th] Loanees. This prevent bankers fro[m] advancing to other borrowe[rs] as per the demand becau[se] of the insufficiency of fun[d] for lending purpose since banke[rs] have to keep liquid cash f[or] the purpose of demand deposi[t]. Thus, poor recovery has posed [a] basic threat to the viability of ban[k] operation in rural areas in particul[ar]. Bankers view that if no discipline [in] recovery is enforced the lo[w] recovery rate will have adverse lon[g] term repercussion also.

Now about wilful defaulters. T[he] question arises, will it be possible [to] identify the wilful and non-wilf[ul] defaulters. Wilful-default mea[ns] non-repayment of loan inspite [of] adequate repayment capacity. A[nd] non-wilful-default means no[n-] repayment of loans due to inadequa[te] re-payment capacity. The identificati[on] of both types of defaulters is ve[ry] difficult if not impossible. In order [to] identify the wilful and non-wilf[ul] defaulters the following poin[ts] should be borne in mind.

Wilful defaulter :

(i) Diversion of income to oth[er] channels,
(ii) No botheration about leg[al] action,
(iii) Fear of not getting fresh loa[n] after repayment of overdue[s]

Non-Wilful defaulters:

(i) Low crop/production,
(ii) High cost of inputs,
(iii) Under-sanction of loans
(iv) Low prices of output.

Some Reflections-Viability

Poor recovery cripples the credit institutions' capacity to draw refinance from NABARD. In the new viability approach which is known as "Programme for Institutional strength" (ISP) for weak institutions the term "Viability" denotes solvency of a client bank. Viability criterion would be applied at the bank level as profitability of a branch is susceptible to several adjustments. The new discipline of viability criteria will apply to all client banks of NABARD except the commercial banks. As a precondition to the unrestricted refinance from NABARD, all client banks will have to achieve by June, 30, 1992 and maintain 80 per cent recoveries each year thereafter in respect of their current demand. Considering this viability criterion for refinance from NABARD it is mentioned that the policy-adopted by the Government regarding write-off of farm credit of both short-term and long term, would further deteriorate the recovery rate not only of agricultural credit but also of other kinds of advances. The impact of loan waiver will also be on other kinds of borrowers. They may also delay the loan repayment instalments.

NABARD has designed a viability criterion of refinance for commercial bank also. The viability criteria is as under:

I) Branches achieving recovery of 80 per cent and above in relation to current demand and 25 per cent recovery under arrears demand would qualify for unristricted refinance.

) The branches having recovery range of 40-80 per cent in relation to current demand and 25 per cent recovery under arrear demand would get restricted refinance.

Those branches having recovery below 40 per cent under current demand and less than 25 per cent recovery under arrear demand will not accounted for any refinance facility.

Commercial banks branches, if il to maintain 40 per cent recovery in agricultural loaning under current demand and 25 per cent recovery under agricultural loaning arrear demand would be taken under Programme for Institutional strengthening.

This viability criterion is applicable from the financial year 1992-93. However, it can be safely said that if banks are not allowed to function as autonomous banking Institutions and if banking institutions are continued to be the victim of politicisation of farm credit then the future growth of credit institution would be dim. This would dampen the enthusiasm of the conscientious staff members in their recovery efforts as they know their fervent efforts to recover current loans and overdues would go waste. It is obvious from the fixed percentage of recoveries, that is, 80 per cent or more rate of recoveries in the field of agriculture, that the non-involvement of both the Union government and state governments can promote discipline of recovery and faster recycling of funds. Furthermore, this would ensure the proper use of funds allocated to agriculture sector by means of progressive monitoring of loan accounts.

Strategies to Improve Recoveries

An attempt has been made to design the strategies to improve the recovery of rural advances particularly of farm credit. It is not possible to lay down the strategies that are applicable to all areas of the country/state because of the hetrogeneous environment. Some suggestions:

(1) In an attempt to recover the overdues, bankers' must look into the causes of mounting overdues. It has been seen that the tendency not to insist the borrower/defaulter for timely repayment of loan is the major cause for growing overdues. So, the recovery officer in order to increase the recovery percentage, or in other words to reduce the volume of overdues, should insist on timely repayment and periodically scrutinise the overdue accounts.

(2) Bank officials in order to ensure regular repayment of instalments should motivate and educate the agriculture loanees' to keep accounts relating to agriculture produce. In this process they should be taught maintaining different kinds of accounts, viz, Stock Account Profit and Loss Account, Balance Sheet, etc. Account, keeping would help the bank officials to see the quantity of produce, expenditure incurred during the period of produce, expenditure incurred during the period specified and the assets and liabilities of the loanee from time to time. If agriculture produce is destroyed due to natural calamities or lack of insurance cover, banker should make the arrangement for protection from landing up into the trap of being defaulter.

(3) Another problem of mounting overdues is the wilful defaulters. In this direction, integrated efforts of the credit institutions can reduce the number of wilful-defaulters. Obviously, integrated efforts means the role of bank management. This includes ardent zeal and frequent visits to the wilful-defaulter's place of business or resident for repayment of loan/recovery of overdue.

(4) Growing overdues is a menace to the existence of banks. This threat to the continuance of a bank can be removed by extending the repayment period beyond the fixed period. The extention should be given under genuine cases, i.e. to non-wilful defaulters. The extended period should ideally be based on the background of the loanee/ defaulter.

(5) Above all, professional approach in pre-lending appraisal system and post

lending supervision techniques, for instance, evaluation of agriculture produce, assessment of external forces, availability of inputs, local market structure, etc. especially at the fixed level, will go a long way in improving the recovery position of agricultural credi

In addition, the selection of schemes should not be done without any consideration to the ability of the loanee. Regarding loan recoveries, "after-care and support by Government agencies should be adequate and encouraging As stated by A.M. Khusro Committee, unless "overdues are contained within an acceptable level, the large-scale expansio the quantum of credit to meet demand of the agriculture sec as projected for the last decad the century, i.e., 1990's, upto year 2000 A.D. cannot be fruitfi

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Oriya literature The famous journals, Utkala Sahitya (1897), Mukura, in the 20th Century, Sahakara, Naba Bharata, Jahnamamu, Arati, and after Independence Jhankara, Naba Jibana, Satyabadi, Dagara, Mina Bazar, Jibana Range etc. all published from Cuttack, provided ample opportunities for writers to experiment and take active part in the cultural revolution of Orissa. The three daily newspapers, the Samaj founded bv Pt. Gopabandhu Das, the Prajatantra and the Matrubhumi are being published from Cuttack, catering to the wide variety of readers in the nook and corner of Orissa. Theatres like Annapurna and Kalashree, helped in revolutionising Oriya drama. Odissi, as a form of classical dance has already received recognition due to the untiring efforts of Kalicharan Pattanaik. Kala Vikas Kendra has done pioneering work in popularising the culture of Orissa.

Cuttack's merchandise contributed to a large part of total exports of Orissa in the past. E today, the filigree works on sil bandha silks and horn works Cuttack are in great demand b inside and outside the coun During recent years, Cuttack been experiencing a very h growth rate of small sc manufacturers. Cuttack continue to be the nerve-centr administration, trade commerce, art and culture modern Orissa for years come.

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CCI's Role: A Case Study

V. Ratna Reddy and V.N. Reddy

The authors, while agreeing in this study that CCI's presence in the market has helped farmers in getting better price, have pin-pointed the areas of its weakness. They suggest the Corporation should cast a wider net by dealing directly with the growers and adopting a flexible price policy.

STATE CAN PLAY A USEFUL role in the agrarian commodity markets. The under-developed agraraian markets give rise to middlemen at various stages depriving the farmers of their benefits. The problems are more severe in the case of crops like cotton due to the complexity of its marketing process. The State is expected to help the producers in overcoming the obstacles in marketing and also in providing remunerative and stable prices. Its role need not be overemphasised in minimising price risk and uncertainty. Further, the State with its resources and infrastructure can provide competitive market environment which would be propitious to the growers. On the other hand, it may prove to be detrimental if it tries to monoplise the market Moreover, its efficacy in influencing the market conditions depends on its commitment, extent, and nature of activities.

On this back drop an attempt is made here to examine the marketing channels for cotton in Guntur district of Andhra Pradesh. The presence of Government as well as private buyers in cotton marketing of this region gives an opportunity to examine the state trading as against private trading. Here, the main objective is to observe whether the presence of State in the market has benefited the farmers in terms of better and stable prices.

Guntur district well known for its commercial farming gained prominence at the national level during 1970s in the production of cotton consequent to the phenomenal rise in the area, production and yield of cotton. The cotton grown in this region is mostly of long and extra-long staple variety i.e. MCU-5, Varlakshmi, H-4, Suvin, etc. Of these, MCU-5 is the single most important variety with 85 per cent share in the total cotton production of the district. Though marketing plays a vital role in the production process of a cash crop like cotton, the State did not give due attention to this aspect in the initial years of the advent of cotton As a result, the marketing of cotton was mostly in the hands of private traders till 1976-77. However, during the year 1977-78 the cotton auction scheme was introduced in the Regulated Market Yards (RMYs) in various towns for the sale and purchase of cotton. Under this scheme the farmers are expected to bring their produce to the nearby market yard where the produce is auctioned. Cotton Corporation of India (CCI) and private buyers were requested to participate in this auction scheme with a view to helping the farmers with a competitive market. Besides, it envisaged several other benefits like prompt payment, liberal storage facilities, etc. in order to encourage farmers. However, this competitive environment in the market was strongly resented to by the trading community. In fact, they obtained stay orders from the High Court to avoid this regulation. Consequently, the CCI was left to be the only buyer operating in the market yeards and continues to be till today. On the other hand, the private traders operate at two levels, i.e. they buy cotton through brokers in the village itself, and in the open market of the nearby towns though a major portion of the total produce is bought at village level only.

Though CCI has been in the cotton marketing since the early 1970's its performance in terms of market share in total purchases was negligible till 1976-77. Even after 1976-77, consequent to its entry into market yards, the CCI has not able to capture the market. In spite of its attractive promises like proper weighing, promot payment and storage facilities which are the major problems of the growers, it failed to win the confidence of the cotton producers. In order to look into the possible reasons for its poor performance in this region in comparison with private traders, the data on cotton purchases and prices have been obtained from CCI and private brokers/traders in two talukas of the district for the period 1979-[illegible]. Besides, the data and observations are also drawn

from a field survey conducted in two villages in Guntur taluka during 1979-80. The analysis is carried out from the year 1977-78 which is the first year of CCI operation in the market yards.

Performance of CCI

During the first year (1977-78) of its operation in the RMY, the CCI had purchased a meagre 3 per cent of the cotton produced in the district (see Table 1). Gradually, it has increased the purchases by spreading its centres all over the cotton belt of the district. The number of centres has increased from 3 in 1977-78 to 11 in 1982-83. The centrewise purchases of CCI are presented in Table 1, for the years 1977-78 to 1982-83. It can be oberved from the table that its market share in the total production has gone upto 18 per cent in 1980-81 from 3 per cent in 1977-78. And it has slided down to 14 per cent in the next two years. Though the growth in the CCI's market share is impressive, its performance in terms of the total purchases remains poor. However, this poor performance may be attributed to the fact that the arrivals of cotton to the town markets are very low. Moreover, the proportion of cotton arrivals to towns to the total production has declined continuously over the years i.e. it has declined from 50 per cent in 1978-79 to 29 per cent in 1982-83. The data also reveal that the total arrivals to towns are almost equally shared by CCI and private traders in the open market after 1979-80. Another study in the same region during 1974-76 also observed that CCI could purchase about 25 per cent of the non-village sales. It is further pointed out that "the procedural complexities involved in the case of CCI's purchases are so tedious and time-consuming that it often takes a fortnight for a transaction to materialise. Besides, the farmers will have to carry their produce to the CCI's purchase depots usually located in urban centres. The CCI cannot avail of the service of local brokers with whom the farmers are very familiar. For these reasons, the respondents were usually reluctant to deal with CCI". However, these procedural complexities seem to have reduced consequent to its entry into the market yards. The gradual decline in cotton arrivals to towns despite better facilities offered by CCI, may be attributed to the reasons: (i) the initial enthusiasm of the farmers to sell their produce to CCI in the RMY's might have subsided due to various reasons, and (ii) more and more traders are going to the villages and buying directly from the farmers at fairly competitive prices in order to avoid the competition with CCI in the town centres. An attempt is made to probe into these aspects in the following section.

CCI Vs. Traders

It is also revealed in the village study that the number of farmers taking their produce to RMY (CCI) was insignificant. In fact, only one out of 450 sample farmers sold his produce to CCI at Guntur RMY though these two villages are well connected to Guntur. This re-emphasises our earlier point that CCI failed to gain popularity despite its best efforts. This also indicates that the purchases of CCI may not solely be from farmers and it may be buying from merchants and traders which was pointed out even earlier. The analysis of purchase prices of CCI in comparision with the prices paid by traders is expected to throw some light in this regard. The monthly purchases and prices of CCI along with other agencies are presented in Table 2.

The data show that the price differences between village sale and non-village sale vary between Rs. 5 and Rs. 41 in different years. The private traders in the open market seem to pay higher prices than that of CCI in two out of the three years. The difference varies from 0 to Rs. 46 which is quite substantial in some years. As regards the variation between village prices and CCI prices, it can be observed that CCI paid higher prices in two of the three years which was higher by Rs. 5 in 1981-82 and by Rs. 32 in 1982-83, and its average price was lower by Rs. 13 in the year 1979-80. Moreover, if the transport costs (which are about Rs. 20 per quintal) are deducted from the CCI prices the difference becomes marginal. In fact, in 1979-80 and 1981-82 the farmers would have lost, had they taken their produce to RMY (CCI). And the price difference of Rs. 10 in 1982-83 does not seem to be lucrative enough to encourage the farmers to sell their produce to CCI. Even the open market price which is higher by Rs. 35-Rs. 40 in some years, could not persuade the growers to take their produce to town markets due to their fears regarding price fluctuations, risk in transport, etc. Apart from the transport, and storage costs, the farmers may wield higher bargaining power at their own place.

On the other hand, the higher open market price reflects the shifts in demand and supply, while the State run CCI does not seem to be so sensitive to these market forces. Apart from these price differences, the price variations are higher in the case of CCI when compared to that of private traders. This indicates, contrary to the expectations, that State intervention in cotton marketing does not have price stabilizaing effect. These high variations in prices (price risk) coupled with low returns (prices) may be the main reason for the farmers to shy away from CCI. The promised prompt payment by CCI does no good to increase its purchases due to high risk and low expected returns.

As regards purchases also, the CCI's operation period in the market is observed to be shorter by one month compared to brokers/traders. Usually every year CCI commences its purchases with a lag of about 3 weeks. It is also noticed that the weekly and hence monthly purchase pattern of brokers/traders in the villages is approximately same as the pattern of monthly arrivals of cotton to Guntur.

Table I

Particulars of cotton purchases made by Cotton Corportaion of India, Guntur, Guntur District (Centerwise) for the years 1977-78 to 1982-83

(Units: Kapas in Quintals)

Sl.	Centre	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83
1.	Guntur	7623 (32)	27415 (42)	36059 (25)	55224 (17)	49969 (17)	22215 (8)
2.	Sattenapalli	4002 (17)	11073 (17)	20785 (14)	45383 (14)	33101 (11)	30699 (10)
3.	Ganapavaram	11934 (51)	26815 (41)	53051 (37)	75940 (23)	76842 (26)	87774 (30)
4.	Kondrupadu	N O	N.O	N O.	N O.	40492 (13)	23386 (8)
5	Perecherla	N O	N O.	N.O	N.O	24271 (8)	N.O.
6	Piduguralla	N O	N O	N.O.	N.O.	10704 (4)	N.O.
7.	Tadikonda	N O.	N.O.	N.O.	34175 (10)	13216 (4)	N.O.
8.	Amaravati	N O	N.O.	N O	N.O	N O.	25524 (9)
9.	Pedanandipadu	N.O	N O.	35188 (24)	121107 (37)	26851 (9)	52783 (18)
10.	Prathipadu	N O.	N O	N.O.	N.O.	25598 (9)	53826* (18)
11.	Total	23559 (100)	65303 (100)	145083 (100)	331829 (100)	301144 (100)	29187 (100)
12.	% to the total market arrivals	8	18	40	51	41	49
13	% of CCI purchases to total output	3	9	16	18	14	14

Figures in Brackets indicate percentage to the total For 1982-83 Phigagipuram also included in Prathipadu N O · Not operated

Source: Cotton Corporation of India Guntur, Assistant Director of Marketing, Guntur

Table 2

Monthly purchases and prices of cotton (Rs./Quintal) by the traders/brokers in the villages of Gunture taluka and CCI at Guntur RMY along with the model price in Guntur open market

Month and year	Village Traders and Brokers		CCI		Model price in open market (Rs.)
	Price (Rs.)	Qnt. purchased (in %)	Price (Rs.)	Qnt. purchased (in %)	
Nov 1979	396	12.7	–	–	401
Dec. 1979	387	36.6	386	59.3	391
Jan. 1980	417	11 1	419	14 7	441
Feb. 1980	473	24 4	471	25.3	489
Mar. 1980	480	9 0	491	0.7	497
Apr 1980	474	6.2	–	–	484
Average 1979-80	426 (9 1)	100 (73 6)	413 (9.4)	100 (88 6)	459 (10.11)
Nov 1981	499	4.6	–	–	507
Dec. 1981	491	20 3	499	25.0	500
Jan 1982	519	30 1	514	15.0	522
Feb 1982	502	18.5	514	48.0	503
Mar 1982	496	20 3	460	5.0	504
Apr. 1982	486	6.2	473	2.0	508
May 1982	–	–	472	5 0	506
Average 1981-82	503 (2.4)	100 (53 1)	508 (3 8)	100 (72 5)	508 (1.8)
Nov. 1982	453	5.8	–	–	490
Dec. 1982	472	36.1	468	15.2	478
Jan 1983	490	29.1	505	25.1	494
Feb. 1983	498	14 8	498	17 1	505
Mar. 1983	511	6.0	529	24.4	529
Apr. 1983	565	8.2	578	15.5	537
May 1983	–	–	616	2 7	640
Average 1982-83	489 (7 3)	100 (73.0)	521 (9.0)	100 (86.8)	530 (8.7)

Notes: (1) Quantity purchased is given in terms of percentage of purchases to total quantity purchased in that year.

(2) Figures in brackets indicate the coefficients of variation in percentages calculated on weekly weighted averae prices.

Net Result

Thus, it is clear from the preceding discussion that CCI is not providing the expected support to the farmers in terms of better and stable price. However, it cannot be ruled out that in the absence of CCI in the market the conditions would have been worse. There is a possibility of collusion among the traders and bringing down the prices in the absence of CCI. Hence, CCI is acting as a protector of farmers' nterests by providing competitive environment in he market. But, it still does not explain its laggardly performance. There is no reason why it does not mprove its market share by paying atleast prices equivalent to open market and maintain stable prices. Through incrasing the scale of operation it can nake some profits and extend its services to a wider area. However, the anatomy of village level marketing nay offer more scope for concrete suggestions.

The village survey revealed that there are large number of buyers (brokers) operating at the village evel. Almost all these buyers belong to the village tself and there is no barrier to enter the market. However, the amount of cotton any single broker middleman) can buy depends on his credibility, economic and social status in the village. Most of hese middlemen operate on behalf of different otton traders belonging to Guntur town and other rading centres within as well as outside the State for commission of Rs. 2 to Rs. 5 per quintal of otton they buy. Therefore, it is not surprising that armer prefers to sell the produce in the village itself, often in his house. The important factors in favour of illage sales are that (i) risk factor involved in price. transportation, storage, etc., is minimized, (ii) farmer is more assured because he is selling to his own people, and (iii) above all, the he is not losing on the price front also.

As regards the sale proceeds it is noticed that otton kapas is purchased mostly on credit basis by he private traders. The final payments are, usually, made after a couple of weeks and in some cases it is often one or two months. This delayed payment coupled with the seasonality in prices, which rise as the season proceeds (see Table 3), may be the reason for their aggressive trading at the village level. The monthly average prices during the cotton season for the period 1976-77 to 1982-83 follow the same seasonality as noticed in the village survey data during 1979-80. Thus, the traders benefit from the village level purchases through fetching higher prices in the later months without investing any money. Besides, they earn profits from the processed cotton (lint) as most of the traders are having ginning mills. In fact, the number of cotton gins have increased from 800 to 1800 between 1974 and 1983 and cotton presses from 10 to 22. Though, the farmers are deprived of immediate payment by selling their produce to private traders in the village, they seem to prefer this to price risk and uncertainty involved in taking their produce to the regulated market yard.

Conclusions

Thus, the State intervention in marketing of cotton in the form of CCI has failed to achieve its objectives of ensureing better and stable prices to the growers. However, its presence in the market helped the farmers through creating competitive environment resulting in enhancing the prices. The CCI's failure to attract farmers may be due to the reasons: (i) low prices with high variation, (ii) considerable time and expenses coupled with the uncertainty involved in the entire operation of taking cotton to the market yards, and (iii) it is uneconomical to take smaller quantities of output at a time-especially for small and marginal farmers-to the regulated market yards.

On the other hand, farmers are deprived of prompt payments due to their village sales, though they are not losing on the price front and the risk factor is minimized to a large extent. In this connection, in order to improve its market share which will have macro-economic implications, and help the farmers further, the following suggestions may be made. The CCI should bear the transport costs and minimize the risk through maintaining stable prices in order to attract more farmers. The price risk can be minimized by announcing the support prices in the

Table 3

Monthly average prices (in Rs./Quintal) of cotton in Guntur Open Market for the cotton season from 1976-77 to 1982-83

Month	Years							Seasonal Index*
	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	
December	486	458	431	391	548	502	476	95
January	524	458	424	449	562	525	499	99
February	516	431	406	491	567	503	505	98
March	545	453	462	497	594	504	532	104
April	545	451	474	483	601	508	560	104
Average	523	450	440	462	574	508	514	100

*Seasonal Indices are computed using the method of link relatives

(Contd. on page 34)

BOOK REVIEW

Indian Tribes Through The Ages, by R.C. Verma , Publications Division, Govt. of India, New Delhi, 1990, pp. 303, Price Rs. 40.00.

This certainly is a good book for the information it provides: it offers an historical account of the tribal people of India who have come to be what they are. The purpose of the book, however, is not clear and it has no theoretical basis. The empirical information is merely culled and synthesized from old books. It is also not clear if the book is meant for elementary students of the human science or, for the publishers' darling "general readers" or, for government officials entrusted with tribal matters.

The book contains a wide spectrum of topics related to tribal studies, including the constitutional safeguards for tribal people, tribal development, exploitation of tribals, tribal unrest etc. Major tribal peoples, such as the Bhils, the Gonds, the Santhals, the Oraons, the minas, the Mundas, are described although, the tribal people of north-eastern India are given scant attention. The best chapters of the book are the ones on the tribals, struggle for survival and the protection of tribals' rights in land. The author has failed to note, however, that the state protectionist policy in minority land rights has given rise to a perennial ethnic problem in Sikkim. Several inaccuracies have crept in the book: (1) The Bhils are referred to as a martial race; to say so is like the colonial British secret note saying that while the Bengalis are brainy, the Punjabis are brawny. The whole business of the martial class or race is a myth created by the British which we can do without. (2) The polity of the Santhals is described as patriarchal. Patriarchy has a kinship reference. A polity cannot be patriarchal, but a society can be. (3) It is stated that no provision exists at present to regulate transfer of land from tribals to tribals. This is simply not true. The Sikkim Agricultural Land Ceiling and Reforms Act, 1977 has a provision enabling a Scheduled Tribe member alienate his land to another tribal member.

A bane of Indian authors writing on tribal matters is that they are not so sure of what they mean by "tribe". The usage of tribe was made by the imperial rulers for the convenience of administration in Africa. While the students of anthropology use this term to denote a stage in the development of civilization which has a reference to polity, in the Indian common parlance, it is used to denote a group of people who do not belong to one of the so-called great traditions and are often portrayed in a manner as though they are animals in an ethnographic zoo. The author has presented the changing concept of tribe in the Indian official literature and although he appears to be sympathetic to the tribal cause, he defines tribe in most outrageous way as "a group of people who are poor and backward". This generalization can be applied to other groups of people too, say, the peasants. The people commonly and erroneously referred to as tribals are but ethnic minority groups and they should be known as such.

The 80-page annexture contains a very useful, handy set of references. However, the biblioraphy section lacks a consistent alphabetical arrangement and some entries are indicated simply by the last name of authors. The author's professional identity is not revealed: Is he an anthropolgist? Readers would like to know the credentials of authors and it should be customary on the part of the publishers to introduce their authors. This subsidized book is affordable and should be read.

Biswanath Debnath

Financial and Economic Analysis of Enterprises by Karl Hedderwick, Sultan Chand and sons, Pages 150, Rs. 50.

This is Manual addressed to workers education. Commissioned by I.L.O., it supplements its companion publication 'How to Read a balance sheet', 1985. The Manual is addressed to trade unions engaged on the negotiation table with the managers. Its language is lucid and simple

Both workers and managers are interested in higher production standards and better financial results. Hedderwick explains what this means in economic, commercial and financial terms. The book seeks to promote more significant participation by workers in the life of the enterprises regarding state and prospects of their own companies. It is thus 'an educational aid, a reference book and a tool for action'.

The contents of the book are neatly drawn. Since workers are investing a precious part of their lives in the company, they have a right to know. Their two major concerns are (1) pay and (2) job security. These are woven around the performance of the companies.

The basic structure of the company accounts is explained in chapter 2. The balance sheet and the profit and loss accounts are the two most important documents, and these are quantitative unlike the Director's Report which is qualitative. The Fourth Council Directive issued by Council of Ministers of the European Economic Community issued by Council of Ministers for the European Economic Community makes the publication of these statements obligatory on the part of the companies. It

is a legal requirement to make this financial information available to the public. The difference between values of current income flows and current expenditure explains how profits and losses occur. The balance sheet gives the assets and liabilities which help in arriving at the 'net worth' of the company,

Chapter 3 deals with the commercial aspects of the enterprise, which is mainly confined to turnover, or sales records. Economic aspects are dealt with in chapter 4. the enterprise hs to be seen as a part of the national economy. The exercises on national income bring this out very clearly. Enterprise create wealth, which when added up, gives the national income. Wealth is *created by land, labour and capital-the productive* factors that David Ricardo so cogently explained in his 'Princilpes of Political Economy'.

The author then brings us to the financial aspects. The concept of profit is defined in various ways, but the most common usage is 'profit after taxation' and 'profit before *taxation'. Gross profits exclude* distribution costs and administrative costs and deals mainly with production costs. Profit over turnover ratio is one way of looking at the thing. Another and which is opposite way of looking at it is costs over turnover. If costs are reduced, profits go up. In economics, the return on capital employed (ROCE) is very meaningful. It is arrived by dividing profits by capital employed. It is a measure of profitability too. Hedderwick emphasises the aspect of 'liquidity' of *the enterprise, which in essence, is the cash flow*

The author presents a model' for economic and financial analysis with the help of various ratios. A hypothetical multi-national company called 'MINITECH' is devised and illustrations given with reference to that company. The ratios in the model explain the indicators of profitability, the indicators of efficiency and the indicators of growth potential. Chapter 7 gives the analysis of 'Minitech' and is followed by appendices. There is also an excellent glossary of economic and financial terms.

The book indicates the author's grip on the subject. I.L.O. has indeed made a good contribution in putting out this manual which is also a good text book for post-graduate students of Economics and Commerce.

S.M. Shah

POPULATION GROWTH AND POVERTY IN R SOUTH ASIA, BY RODGERS GERRY (EDI SAGE PUBLICATIONS, NEW DELHI, PP. PRICE Rs. 195/-

Population and poverty are the two most bu problems of Rural South Asia. The increasing pre of rapid rise in population on productive reso has been one of the major factors contributing alarming rise in poverty and backwardness in South Asia. Different countries of South Asia taken a number of steps for solving the i Unfortunately, such policies, and programmes failed to deliver goods. This trend calls for a c evaluation of different facets of population g and poverty so that a suitable strategy could be ev for solving the issues effectively and efficientl

The book consists of six well w papers contributed by the experts from India, Pak Ethiopia, ILO and Norwich. The countries cove the study are India, Pakistan, Bengladesh and I and the papers cover the different facets and dimensi population and poverty in these countries. A st omission of the study is Sri Lanka where popul and poverty are also two major problems. omission has reduced the value of the book considerable extent. On the whole, all the six p are of high quality and give insight into the d extent, dimension, pattern and effects in a logi well as scientific manner. It could serve as a opener for the planners and demographers of Rural Asia.

Dr. Badar A. I

(Contd. from page 32)

beginning of the season and this price shou sensitive to market forces. This, in turn, ensure open market prices will not be higher than th prices which is often observed in the mon procurement of cotton by the State Governm Maharashtra. Further, in view of the declinin village sales, that CCI should go to the village the private traders) and purchase cotton, inst expecting the farmers to bring their produce RMY. This would enhance CCIs Scale of ope resulting in higher profits, though the pe margins may be less.

The authors are working in Gol Institute of Politics & Economics, and I.I. M, Calcutta respec

Record Performance by NHPC

Record generation of power, increased sales revenue, better profits, commissioning, of Jeypore Talcher Transmission system, start of construction work on three new projects are some of the major highlights of the activities of National Hydroelectric Power Corporation Ltd during the year 1989-90. The Corporation generated a record of 3,433 million units of power during the year as against 3,198 million units during 1988-89. The capacity utilisation of the operating units went upto 106.1 per cent as against 99.75 per cent during 1988-89. Besides, the Corporation transmitted 1418 million units of energy from Chukha project (Bhutan) to the beneficiary states in Eastern India against target of 1374 million units during the year.

NHPC made a net profit of Rs. 53.67 crores during 1989-90 as against Rs. 48.31 crores during 1988-89. NHPC is to start work on six new projects during the 8th plan period which will add 2400 MW of installed generating capacity to the national grid.

NHPC is laying emphasis on implementing the afforestation programme drawn up for its different projects. The Corporation plans to plant about 10 million trees in and around its different projects, out of which about 4.88 million trees have aleady been planted.

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Yojana Essay Competition

To commemorate the International literacy year and the SAARC year of the Girl Child, Yojana is organising an essay competition open to ladies only.

The subject of the essay is – Girl in Indian Society.

There will be three prizes– Ist prize Rs. 1000/-, IInd prize Rs. 800/- and IIIrd prize of Rs. 600/- in cheque. All the award winning essays will be published in Yojana.

The essay should be of 1500 words or so.

The last date for receipt of the entries is 25.10.1990.

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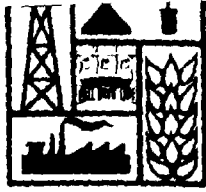
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Development Diary

Import Substitution by HARTRON

During the last few years, HARTRON, a Haryana State Undertaking has established an R&D base in the field of electronics and opto-electronic instrumentation by training engineers abroad and installing sophisticated equipment. As a result, more than 100 products have been designed and developed at the initiative of the local industry and other known Government and private users in the country. Several of these items are of import substitution nature, thereby contributing toward foreign exchange savings.

Import substitution items include indigenisation of electronic systems for automobiles particularly relating to Japanese technology. The water level sensor and control panel, which were earlier being imported from Japan, are now being indigenously produced by private parties utilising HARTRON knowhow. Other important items developed are laser pointer, passive optical devices, specialised optical components and coatings for space applications and photo copiers, microprocessor-based accupuncture electrostimulator, apertometer and unit magnification optical system for ultra sound scanning.

As a result of expertise developed and the success of indigenisation, the Corporation has received several orders for production from government and private organisations. It is estimated that import substitution knowhow developed by HARTON, when in full production, will result in foreign exchange savings of about Rs 20 crores a year.

Computerised Passenger Reservation

With the completion of computerised passenger reservation systems at nine more stations of Pune, Guwahati, Jaipur, Gorakhpur, Trivandrum, Jammu Tawi, Patna, Bhubaneshwar and Cuttack during the current financial year, the reservation workload under computerisation will go upto 66 per cent of the total railway passenger reservation. Since 1985 when computerisation was first introduced, it has already covered nine major cities of Delhi, Calcutta, Bombay, Madras, Secunderabad, Ahmedabad Bangalore, Bhopal and Lucknow. The total coverage of passenger reservation by computers so far is 57 per cent.

Delhi alone handles 60,000 reservation transactions per day while the total reservation workload on Indian Railways is about 4,00,000 reservation transactions per day.

On-line return journey reservation facilities are now available between Delhi-Calcutta, Delhi-Bombay, Delhi-Madras and Calcutta-Madras and vice versa. This facility of reservation for either side is being extended further. This is a turning point in the area of customer service, eliminating complaints regarding non-issue of reservation messages prevalent earlier in the manual system.

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Literacy – Now or Never

Lakshmidhar Mishra

LAUNCHED ON October 2, 1978, the National Adult Education Programme (NAEP) was intended to impart functional literacy to 100 million illiterate adults within a period of 5 years. The programme sought to achieve this objective partly through a centre-based programme and partly through a mass volunteer-based approach involving teachers and students of universities, colleges and schools, members of disciplined forces, ex-servicemen, non-student youth volunteers, etc. However, this mass campaign orientation was not achieved and the NAEP remained primarily a Government funded and Government controlled centre-based programme for nearly 10 years.

It has been observed that during the last 10 years, there has been an appreciable increase in the number of adult education projects, education centres, adult learners and also the outlay. Despite all possible efforts, however, coverage under the programme has not been found to be appreciable in terms of the number of persons made functionally literate.

World's Largest

The gains achieved in literacy from 60 million persons in 1951 to 247 million in 1981 have been more than neutralised on account of an alarming increase in rate of population growth on one hand and large scale drop-outs and relapse into illiteracy of the neo-literates on the other. Today, we are confronted with a massive number of 450 million illiterates in all age groups which is equivalent to the combined population of USA and UK.

Of this, about 100 million illiterates are in the 15-35 age group which is considered to be the most productive age group crucial to the task of national reconstruction. This number is constantly on the increase and by the turn of the century, will have the single largest number of illiterates in the whole world.

Evidently, no nation can put up with such an ignominious situation. This, therefore, becomes a matter of national conscience. Moreover, it is not possible to achieve the objective of total eradication of illiteracy (involving such a large number of illiterates in different as well as the adult age-group) entirely through governmental efforts. Government can, undoubtedly, take cognizance of the situation, can identify the agencies, institutions and individuals, can act as a catalytic agent to provide human, material and financial resources, but government cannot eradicate illiteracy or promote literacy all by itself The efforts of government-both central and state- therefore, will have to be supplemented and strengthened by a number of new agencies, institutions and individuals who are good, reliable, having a clear and positive perception and commitment

Keeping this perspective in view, a new thrust and priority was given in the 7th Plan period to involve teachers and students on a mass scale for the removal of illiteracy. To begin with, the Mass Programme of Functional Literacy was launched in May, 1986 by involving NSS and other student volunteers in colleges and universities on the principle "Each One Teach One". Starting on a modest scale of 2 lakh student volunteers in 1986, it has gone up to 3.50 lakh NSS student volunteers by the end 1989-90 and is likely to go up to 4.50 lakhs in 1990-91.

On the recommendation of the General Conference of UNESCO, the General Assembly of United Nations has declared 1990 as the International Literacy Year (ILY). The objective is to generate an intensive public awareness about the need for and relevance of literacy, the predicament of illiterates as also in carrying conviction to millions of illiterates that illiteracy is not a fatality but the outcome of certain unfortunate social, cultural and politicial compulsions and is fully remediable. The ILY at the national level was launched by the Prime Minister at a special function in New Delhi on 22nd January, 1990. The Prime Minister exhorted all sections of society including the student and non-student volunteers to muster their collective strength in the noble pursuit of spreading the message of literacy and actual imparting of literacy, The responsibility of teachers and students who constitute an important segment of the society has, therefore considerably gone up in the context of this appeal of the Prime Minister.

The participation of students in NLM may be viewed both as a social mobilisation as also a part of our total efforts for reduction of inequality and creation of opportunities for those unfortunate sections of society who have been deprived of the access to education for no fault of theirs. The need for and the rationale of mobilising student volunteers and engaging them in literacy action arises out of the following considerations

The students and particularly students in schools who are in a comparatively younger group, are full of patriotism and have a genuine and sincere urge for community service They are unsullied by the corrupting forces around them and given the right

orientation and motivation can rise to the occasion to take up literacy work out of a natural and spontaneous desire to teach the unfortunate illiterate adults as part of their social obligation to, them The student volunteers will also be able to establish a much better rapport with the illiterate adults and their family as also in their neighbourhood as they speak the same language which is intelligible to illiterate adults Besides, they themselves are in the formative stage of learning, have a genuine commitment to learning and they could learn a number of things from the lives of the adults In other words, imparting of adult literacy becomes an extension activity for the student volunteers

Various Stages

The Mass Programme of Functional Literacy with the involvement of student volunteers involves a lot of stages in the entire process. The first as master trainers, motivation and mobilisation of student volunteers, selection of volunteers who are genuinely and sincerely committed to literacy work after a process of tharough screening and identifiction of illiterate persons in the age-group of 15-35 who may be staying in the neighbourhood of an educational institution Then comes the most important task of forging a link between the student volunteers and the illiterate persons and assigning an area of operation for each volunteer Master trainers will have to be trained first and the student volunteers have to be trained by the master trainers. Monitoring of the programme from the student volunteers has to be done by the senior teachers/headmasters of schools.

Then comes the coordination with various development departments/agencies by way of visit of functionaries to the place where the volunteer is imparting literacy, making them participate in the programme by telling the learners about the advantages of being literate, making available charts, posters and other development materials to the learners and identifying genuine difficulties of the learners in the matter of obtaining loan from the banks and bringing about a meaningful coordination between literacy and development Post literacy activities for the neoliterates should be provided through libraries, reading rooms etc.

The coverage and support by media is of crucial importance And finally the evaluation of the overall impact of the programme through Institutes of Social Science and Research or through University Departments of Adult, Continuing Education and Extension or through Institutes of management

The various stages involved in the process are really matters of detail; they need to be worked out with lot of imagination, precision, care and concern keeping in view the peculiarities of the environment in which both the student volunteers as well as the learners are placed. It may be noted that majority of our illiterate adults live in the countryside and majority of them are women and belong to scheduled Caste and Scheduled Tribe communities. They have problems of unemployment and underemployment and cycles of excessive seasonality of employment.

The Clientele

Many of them work as either home workers- as in beedi industry, collectors of minor forest produce such Sal seed, Tendu leaf, cutters of bamboo in dense forests, fishermen (both in-land fishing as well as marine fishing) collectors and flayers of raw hides and skins All these groups work in extremely harsh and unhygienic conditions and are exposed to lot of operational risks and hazards. The urban illiterates include scavengers, headload carriers, cart drivers and rickshaw pullers who work under excruciatingly difficult conditions Being ignorant and illiterate they are not aware of the minimum wages notified by government in respect of scheduled employment nor are they aware of the system and method of payment of wages.

Illiterate women who are in the adult age group and majority of whom work and live in the rural areas are also victims of a Pardah system which is characterised by fads, taboos, die-hard obscurantist ideas and practices They have an extremely arduous and monotonous both at home and outside, Women who are engaged in dweedling/seedling and transplantation in the paddy field or thrashing of wheat/ jowar/bajra or pealing of the skin of fish or variety of such other like occupations for which they are found suitable also fall prey to the machinations of contractors and sub-contractors and other middlemen who cheat them and exploit their illiteracy and ignorance to their own advantage. The one single feature that distinguishes the illiterates from other categories of workers is lack of organisation and consequential absence of bargaining power.

It is also clear that the clientele in the National Literacy Mission are not easy to be handled. It is both large in number as well as an inchoate group. They are scattered and their working and living conditions are widely different. The working and living conditions particularly of the inter-state migrant workmen are most difficult and not at all conducive to any activity like teaching and learning.

Collective Commitment

Nevertheless. each member of the target group is important for the mission We need to appraoch them, talk to the in the language of their soul which is intelligible to them, talk to them in the language of predicament and try to identify ourselves with their laughter and tears it is only when we succeed in doing this, some rapport may be established and they may treat us as part of their being and not as outsiders. It is only when such understanding and goodwill is generated, they will feel naturally

(Contd. on page 21)

Investments For Science In India

Dr. Pawan Sikka

The budget allocated for the development of science in India is inadequate in view of the various scientific problems as well as the size of the country. However, it is quite sufficient if it is used judiciously. Despite the sizeable increase in Plan allocations for S&T activities, the compactness of science seems to have taken a different shape due to the creation of separate nine subject-oriented scientific Departments of the Government and three scientific agencies in India.

RESOURCE ALLOCATION represents one of the most difficult recurring problems faced everywhere and in almost all cases the human and material resources available are quite inadequate to cope with all the needs and hence painful choices have to be made. This problem is certainly encountered in making alloctions for scientific and technological activities as well as scientific and technological system.

It has been reported in a study that the energy consumption per dollar of output of the industrial sectors in middle-income countries was almost four times as high as that of the high-income countries. This is mainly due to the obsolete technology and equipment used in industrial production in the middle-income countries. This is a good example of the influence of S&T on economic development and is an important factor to be considered in formulating development strategies. Another study by ESCAP points out that in Japan, for every $ 100 worth of imported technology, about $ 125 was spent in local R&D efforts to digest these technologies with a success rate of about 50%. Japan's past experience has important current implications for most developing countries.

During the last three or four decades, there have been many kinds of efforts of the governments to promote the use of science and technology (S&T) in the developing countries, such as enhanced fiscal fiscal provisions to academic and R&D institutions, liberal import-procedures for the transfer of technology, strategies for the promotion of export, bilateral and multi-lateral S&T cooperation programmes, better opportunities to scientists & engineers for their professional growth etc.

Science in India

Recognising the importance of S&T as a major force in national development, Pandit Jawaharlal Nehru laid the foundation of our scientific and technological infrastructure soon after the attainment of Independence. Since then, science has been playing a vital role in the emergence of modern India. It has helped in raising the standard of living and in imparting a modern outlook to its people. India is now helping many of the developed and developing countries by sharing its technical expertise and trained manpower. The present status of Indian S&T is largely the result of planned efforts and the commitment of the Government.

The Central Government plays a dominant role in the develpment of science and technology accounting for 80 per cent of the national research and development funding in the country. The organization of science in India can broadly be categorised in respect of performance sectors as.

(a) Academic institutions, which include universities and colleges deemed universities and institutions of national importance, centres for advanced studies in science and engineering, medical colleges and hospitals, agricultural universities and colleges.

(b) Major scientific agencies such as the Council of Scientific and Industrial Research (CSIR). Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), Department of Atomic Energy (DAE), Department of Space (DOS), Department of Science and Technology (DST), Defence Research and Development Organisation (DRDO) and Department of Environment (DOEN), Department of Non-conventional Energy Sources (DNES), Department of Biotechnology

(DBT), Department of Electronics (DOEL), Department of Ocean Development (DOD), Department of Scientific & Industrial Research (DSIR), etc.

(c) Co-operative research institutions and industrial in-house R&D.

(d) The ministries of Central and State governments also have R&D institutions performing research specific to their respective missions.

Resource Allocations

Scientific and technological research involves huge investments which calls for an optimal utilisation of scarce resources available in the country. The importance which the Government of India attached to S&T towards self-reliance can be gauged from the drastic increase in the allocation of budgetary resources for the purpose since 1950. Plan allocations for S&T activities have increased from Rs. 20 crores in 1951-56 to Rs. 4813 crore during 1985-90 as shown in Table 1. Besides, the percentage of GNP devoted to R&D activities have also gone up substantially from 0.3 per cent in 1959 to 1.10 per cent approx. during 1987-88. It hopes to reach a target of 3 per cent by 2000 A.D. The trend for R&D and S&T activities is shown in Table 2.

Table 1

Financial resources provided in the successive Five Year Plans

(Rs. in crores)

	Plan	Non-Plan	Total
1st Plan (1951-56)	14	6	20
2nd Plan (1956-61)	33	34	67
3rd Plan (1961-66) .	71	73	144
4th Plan (1969-74) .	142	231	373
5th Plan (1974-79) . .	693	688	1381
Annual Plan (1979-80) .	208	222	430
6th Plan (1980-85) ...	1960	1447	3407
6th Plan (1980-85) . (Scientific Agencies only)	1158	984	2142
7th Plan (1985-90) . (Scientific Agencies only)	2466*	2347	4813

An interesting feature of the subject is that India does not have a single budget for science & technology *per se* but instead have allocated financial resources to various scientific departments/agencies (as per their importance and prioriterization of work) as shown in Table 3.

Expenditure

During 1986-87, about 19% of the expenditure was incurred by the industrial sector comprising public and private sector and the rest 81% by the institutional sector. About 92% of the expenditure incurred by the government sector both central and state came from the Central Government and the rest 8% came from the State Government. Of the total expenditure in the institutional sector, about 13% was spent on basic research, about 30% for applied research, 33% for experimental development and rest 24% for other activities.

On a national scale, the Central Government accounted for 80% of the expenditure. Major Scientific

Table 2

Trend in national expenditure on R&D and related S&T activities, 1948-49 to 1987-88

(Rs. in crores)

Year	1948-49	1955-56	1965-66	1975-76	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Expenditure on R&D												
Central sector	1.10	12.14	62.45	287 63	580.49	721 94	912 00	1053.37	142225	1654 06	215758	2481 19
State sector	na	na	2.43	42 35	120 69	147 00	196 98	207 83	233.19	251 94	318 11	381 73
Private sector	na	na	3 51	26.73	59 34	71.79	97 05	119.90	126 11	16278	191.36	214.88
Total	1 10	12.14	68.39	356 71	760 52	940 73	1206.03	131,10	1781.55	2068 78	2667.53	3077 80
Expenditure on related S&T activities												
Central sector	na	na	16 67	36 09	36 73	43 21	24 57	28 91	88 52	97 98	131 68	151.44
State sector	na	na	na	5 21	16 39	19 51	24 36	31 00	42 58	57 15	66.35	74 31
Total	na	na	16 67	41.30	53.12	62.72	48 93	59 91	131.18	155.13	198.04	225.75
Grand total	1 10	12.14	85.06	397 99	813 64	1003.45	1254.96	1441.01	191273	2223 91	2865.57	3303.55

Sources: Data collected and compiled by DST, Research and Development Statisitics, 1986-87
Data for 1948-49 and 1950-51, Science Policy and Organisation of Scientific Research in India, page 99.
Data up to 1970-71, Report on Science and Technology, 1970-71 brought out by COST

Notes:
1. Data for 1948-49 represents only expenditure of CSIR, ICAR, ICMR and DAE
2. A number of organisations are engaged in scientific and technological activities, such as weather forecasting, geophysical surveys, teaching, consultancy etc In addition they also undertake research for which, in a number of cases, no separate account is maintained Wherever such details have not been provided their expenditure on research has been estimated
3. The number of units in the private sector varies from year to year.
4. data for 1987-88 has been estimated by applying the following rates of growth: central sector 15%, state sector 12%, private sector 20%.

Table 3

R & D Outlay and Expenditure in Major S&T Agencies (Rs. in crores)

S&T Agencies	1974-79		1980-85		1985-90	
	O	E	O	E	O	E**
Atomic energy	167 13	219 69	533 57	563 35	1037 07	182.75
Environment & ecology	--	-	56 04	60 62	400 00	205.55
Ocean development	--	-	40 00	94 80	149 00	34.26
Science & technology (DST)	58 96	120 32	455 14	518 12	837.43	156.90
Biotechnology (DBT)	—	—	-	—	131 00	62.09
Scientific & industrial research	81 77	159 02	434 61	491 50	909 00	210 36
CSIR	81 77	159 02	434 61	490 15	885 00	199 61
DSIR	—	—	--	1 35	24 00	10 75
Space	128 27	145 49	392 72	464 65	1075 00	720 30
ICAR	153 56	173 35	530 00	514 37	825 00	227 20
ICMR	21 32	14 50	66 00	74 08	222 54	89 51
Defence R&D	n a	n a	n a	867 00	n a	na
Human resource development						
UGC	35 50	19 25	50 00	39 02	180 00	n a
Technical education	n a	n a	92 00	41 33	n a	n a
Forestry & wild life		-	n a	97 10	447 00	198 64

** Estimated plan expenditure for 3 years, viz 1985-86, 1986 87 and 1987-88 only does not include non-plan expenditure

-· New department, n a – not available

Agencies accounted for about 83% of the expenditure in the central sector and the rest was by ministries. Amongst the Major Scientific Agencies, Ministry of Defence accounted for 37% of the expenditure. Expenditure by the various states increased from a meagre Rs. 12.58 crores in 1970-71 to Rs. 258.2 crores in 1986-87. The yearly growth rate was on an average in the neighbourhood of 16-18%. According to the accepted convention, the Central Government is expected to tackle S&T problems at the national level, while the states are required to deal with those problems which have a regional bias or are local in nature. India being primarily an agricultural country, it is no surprise to notice that 94% of the R&D expenditure by the States was set apart for the development of agriculture and allied areas.

Industrial R&D expenditure has increased from Rs. 404.41 crores in 1984-85 to Rs. 555.16 crores in 1986-87. About 42.7% of the total industrial R&D expenditure was accounted for by 95 public/joint sector companies and the rest 57.3% by 865 private sector in-house R&D units during 1986-87. The proportion of spending by the public and private sectors has more or less been the same during the 3 years ending 1986-87. R&D expenditure as a percentage of sales turnover for the industrial sector worked out to be 0 71% The proportion of sales turnover spent on R&D by the industry in India is far below than that spent in the developed countries.

Expenditure on R&D and related S&T activities was 0 96% in 1985-86 which increased to 1.10% in 1986-87. It would also be relevant to highlight that growth of GNP for these years ranged between 10 to 12% whereas the growth rate for R&D expenditure was much higher resulting in the figure of expenditure as percentage of GNP rising to 1.1%.

Learning Stage

Generally speaking, the technology development of most developing countries is still in the stage of learning and mastering advanced achievements already made in the world. The rate of their national economic growth depends heavily on how effectively it uses foreign and domestic technology and this may not be measured well by such indica as R&D investment and number of publications, citati etc Much research work don the developing countries often be "just for research's s with very little connection v production sectors and natio socio-economic developm objectives. The technology between the developing and developed countries is, first of in the field of organization management. Education eff and S&T activities that will en the masses to mainpulate assimilate advanced technolo are perhaps more important t purely academic research activi India's S&T efforts got a big b in as much as its Plan ou increased from a figure of Rs crores in the 4th Plan to Rs. crores in the 5th Plan and touc Rs. 7535 crores in the Seventh P (1985-90). As a percentage of pu sector outlay it has increased fr 0.5% in the Ist Plan to 2.4% in current Plan. Almost 80% of S&T allocation is for the m scientific agencies.

Productivity Model

It is often asked whet the productivity of R

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Table- 4

R&D Expenditure by objectives for 1986-87

Objective	*Percentage*
Defence	24.8
Promotion of Industrial Development	17.2
Development of Agriculture Forestry & Fishing	15.9
Production, conservation an distribution of energy	9.0
Space	8.5
General advancement of knowledge	5.2
Development of Health services	5.1
Development of Transport and Communication	4.5
Protection of Environment	4.0
Other Aims	5.8
	100.0

commensurates with the level of investment made by the country. No model has so far been evolved, either in this country or even in the developed countries to evaluate the productivity of R&D. In the absence of such indicators, attempts are made to look to some other parameters which throw some light in this regard, even if it is in an indirect manner, for example patents, in-house R&D units, academic sector, S&T manpower etc.

The number of applications for patents made every year varied between two to three thousand over the period 1976-1985 and it was 3526 for the year 1985-86. The number of patents sealed varied between eight hundred to three thousand during 1976-1985 and it was about 2000 in 1985-86. The number of patents in force as of 1985-86 was about 13,000. As is well known many foreign nationals take patents in countries other than their own with a view to putting a curb on the commercialisation of products developed by them. The number of patents sealed in the name of foreigners was almost two to three times those sealed for Indians. So, it may be seen that the number of patents in force during the year 1985-86 in respect of foreigners was almost four times the number held by Indians. Amongst the foreign nationals, those from USA accounted for about 1000 out of more than 2500 applications made during 1985-86. Amongst the Indian States, Maharashtra, Delhi and West Bengal accounted for about 60% of the applications for patents made in 1985-86.

Industrial Sector Leads

In-house R&D units of the industrial sector are expected to undertake applied research as also experimental development. In the case of institutional sector, there could be a mix of basic research coupled with applied research as also experimental development. It is for this reason that out of about 7730 products processes/import substitutes/design prototypes developed, about three fourth were by the industrial sector. Research laboratories in the institutional sector are also expected to provide consultancy services to industry. About 80% of the total activity in this regard was undertaken by the institutional sector. To keep oneself abreast of the latest trend of research in the area of interest as also to disseminate the latest achievement to the scientific community at large, both within and outside the country, Scientists and Technologists in the R&D institutions are expected to participate in national/international seminars.

Together with the decennial census 1981, a survey of degree holders and technical personnel was carried out on a census basis in a few states and on 20% sample basis in other states. The response to this survey being not very good the data so collected could serve as an indicator of a trend rather than throwing light on the ab numbers involved. As pe survey, the proportion of amongst S&T personnel, w high as 85.2%. Amongst S&T p nel, there was a predomina Natural Scientists. The propor from 0.7% in Engineering to 3.8% in Agriculture and Vete Science. A little less than on of S&T personnel were enga either teaching or doing ext work.

As on 1st April 1986, near lakh personnel were emplo R&D units including indus the country, out of which 35 engaged primarily in R&D act 29% were performing a activities and the rest 36% providing administrative other non-technical su There were 4375 females d engaged in R&D activitie number of auxiliary person R&D personnel varied from 1.7 in the institutional whereas in the industrial these figures for public private sectors were 1.02 an respectively. Amongst per directly engaged in R&D act there was a predominan Natural Scientists in the instit sector whereas in the c industrial sector the Eng were far more in numbers. institutional sector, about the S&T personnel were doc degree holders and more th were post graduates. On th hand the general level of qua tions of R&D personnel industrial sector was much

India has 3.43 sci engineers and technicia thousand population where figure for Japan was 309.19 USA 14.90. Similarly, scie engineers and techn engaged in R&D per th population for India was ab whereas USA has a corresp figure of 3.09 and Japan h Most of the developed co spend between 2 to 3% of th on R&D but for deve countries it is in the neighbo of 0.5%. India's figure of 1. doubt was higher than man developing countries, y

country needs to upscale its R&D efforts manifold if it is to reach the level of 2 to 3% by the end of the century.

UNESCO Indicators

UNESCO has laid down 13 objectives for apportioning the national R&D expenditure, that is each research project has to be assigned to some specific objective after which aggregation is to be attempted. At the present juncture such an exercise is operationally not feasible taking into account the large size of India and the large number of research projects being handled by different institutions. As a compromise, a rough and ready method has been adopted by assigning each institution to specific objective depending upon its predominant activities. On this basis percentage allocation for various objectvies is given in Table 4 which indicates that almost one fourth of the expenditure is accounted for by the objective Defence. However, it may be relevant to highlight here that as per UNESCO guidelines, under the objective Defence, only those projects should be included which are exclusively for defence purposes. Such an exercise would have been possible, if the classification of data has been done on project to project basis. For the reasons cited earlier, it has not been possible to do so. Hence the data shown in Table 4 represents in a way the upper limit, rather than actual proportion devoted to any particular objective.

Conclusion

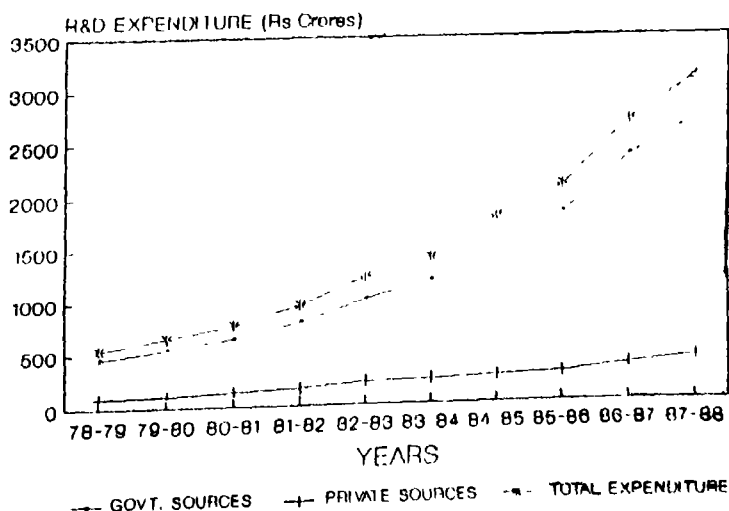
A close look is now required to assess the existing model of funding science in India and to draw lessons from models prevalent in other countries. Four decades of planned growth, and liberal funding coupled with a strong political will in India has resulted in creating a wide infrastructure in respect of scientific & technical institutions, technical manpower, academic and industrial sectors, etc. But this output is nowhere near the progress made by Japan, Korea, UK, USA, etc. What we need today is a model different than the existing one, which may make the Indian science to cast a visible impact on the world map. Two lines of arguments are now prevailing in the country on the quantum of investments needed for the development of S&T sector, such as

(a) Large scale investment are needed, than the hitherto provided by the Government, keeping in view the vast size of the country as well as the variety of problems faced by her. Also the country needs to develop a few peaks of excellence at least in certain fields to match with the progress of S&T in the world; and

(b) one can manage the job within the earlier allocated budget if one can identify prorities in S&T.

It may follow the preparation of the state of art reports in selected areas, identifying its strength and weakness in the Indian system, gap areas, sponsoring of suitable R&D projects, international cooperation with proper countries, supporting of national & international conferences in the chosen areas, etc. resulting thereby in peaks of excellence, etc. This may call for an effective management techno-economic studies, monitoring & evaluation and proper auditing of the resources, fixing up the accountability on the scientists, etc. One cannot escape from the responsibility of input vs. output relation in science and technology.

Further, as various motivational measures are being undertaken for creating an environment of self-reliance in India, by way of encouraging the development of in-house R&D in Industry, tax-incentives and liberal import of scientific equipment, spares and chemicals for R&D etc. And also various subject-oriented scientific Departments (9 scientific Departments & 3 scientific agencies) of the Government have been created such as, environment, ocean, industrial research, renewable sources of energy, space, atomic energy, electronics, etc., to promote science in an effective

NATIONAL EXPENDITURE ON RESEARCH AND DEVELOPMENT BY SOURCE

(Contd. on page 14)

South Commission Report: Stress on Maximum Self-Reliance

G. Srinivasan

The recently released South Commission Report, a comprehensive document, terms as a "regrettable manifestation", the present inter national economic system which is marked by a series of maladies. These include the unsustainable burden of external indebtedness, the decline in export earnings due to adverse terms of trade and rising tide of protectionism, the dramatic reduction of resource transfers from developed to developing countries and the abnormally high levels of real interest rates. The author finds the report as a refreshingly bold document for it renews the plea for intensified South-South Co-operation and calls for subserving self-reliance among the disparate group of developing countries.

A COMPREHENSIVE document encapsulating the development saga of the global economy in general and that of developing countries in particular was released by the Geneva-based South Commission recently. The message and the motif of this bulky document is too important to be ignored as three and a half billion people, representing three quarters of all humanity, live in the developing countries or the South. Claiming that the South has entered the 1990 facing the formidable task of recouping the losses of the past decade and returning to a path of sustained social and economic development, the South Commission clearly states that the world economic structure as it obtains now is patently biased against millions of people in the developing world. As such, drastic policy reforms should be effected to overcome poverty and raise living standards in the third world.

It may not be out of place to state that the reference to the Third world is no longer valid since the collapse of the Berlin Wall and the political and economic reforms being made in the East European countries and Perestroika and the Glasnost pursued in the USSR have set at rest any doubt about the extinction of the nomenclature "the second world" ! Be that as it may, the exhaustive document which is the outcome of three years of painstaking work by the Commission's independent groups of persons from developing countries should be viewed in the context of the new global realities These include, appreciable trends such as the thaw in the East-West relations, the reforms in the Soviet Union and Eastern Europe and the globalisation of financial and economic activity. What is particularly noteworthy about the South Commission's Report which is titled "Challenge to the South" is that the 320-page document prepared by a 28-member group headed by the former Tanzanian President, Mr. Julius Nyerere has unveiled a strategy for the developing world in the wake of four decades of development experience. The recommendations of the Commission wı undoubtedly go a long wa helping to revive and sustain process of people-cent equitable and sustain development in the develo countries.

North-South Divide

Recalling the developn experience soon after the G War, the Report said that in post-war years and until the er the 1970s, a great many of countries of the South regist impressive social and econc gains This automatically gave to the expectation that the N South divide in wealth and pc could be bridged. But the 1 belied the expectations. While industrial countries of the N recovered from the reces of the early 1980s and had enjoyed seven years of uninterru growth, most countries of South faced an acute and persi development crisis. Per ca income and living standards sharply squeezed and hope tu into despair, giving rise destablising and potent explosive social and econc tensions.

The Report recalled profound development crisis seen both current consump and productive investn continuing to shrink year a year in a large number developing countries in Africa Latin America. The Report tern "regrettable manifestations" present international systen such syndromes as unsustainable burden of exte indebtedness, the decline export earnings due to adv terms of trade, rising tide protectionism, dramatic reduc of resource tansfers fi developed to developing count

and the abnormally high levels of real interest rates. The Commission minced no words when it conceded that this state of affairs, however, did not exonerate the South as being free from blame, since countries in the South too had made policy mistakes and frequently failed to be efficient or even effective in the implementation of good policies.

North-South Dialogue

In a forthright attack on the imbroglio on the North-South dialogue for restructuring the world economic system to the benefit of the exploited lot, the Commission said that despite sustained talk of the need for global coperation for development, no international attempt has been made to evolve a shared global perspective appropriate to the growing interdependence of the world. The North-South dialogue is virtually in the limbo, even at a time when the income inequalities and development disparities between the developed and the developing countries had not only widened but also been reinforced by the rapid scientific and technolgical advances in the western world. Under these dispiriting circumstances, the South could not count on a marked improvement in the global economic milieu in the current decade. As such, maximum self-reliance should be the keynote of renewed development effort by the South.

In this connection, the Commission said,the first objective should be to meet the basic needs of the people and this involves the achievement of food security, introduction of land reforms and the re-orientation of investment and promotion policies in favour of small peasants and co-operatives. Alongside, countries in the South should take efforts to increase off-farm employment both in productive rural works and in rural industries and the adoption of specific measures tailored to raise the income and productivity of the urban poor.

Industrial Development

On industrial development in the developing countries, the Commission noted that the emphasis should be on the spread of, mass market for basic goods, strengthening of industry's links within the national economy, increased and more efficient use of local resources and economy in the use of energy and imported inputs. Industrial incentives as well as publicly supported facilities for research and development should favour small scale, labour intensive industries and rural enterprises processing local materials. In sum, the Commission contended that industrial policy and public investment should be supportive of export efforts and the public sector should establish or encourage export promotion bodies and endeavour to open up marketing channels

The Commission has also emphasised the need to close the knowledge gap with the North so as to stengthening the South's ability to make technological choices and use technological advances for development. It also called upon most of the South countries to enhance substantially their spending on research and development. Their current allocation for R&D must be doubled, so as to bring their level close to one per cent of gross national product, recommended by the UNESCO.

The Commission said,the South must aim at fast and sustained growth, which entails high rates of investment and savings and the utmost efficiency in the use of resources. Alongside, people-centred development implies a full commitment to equity and paticipation. This calls for strategies that are sensitive to the social, cultural and gender dimensions of development. Innovative ways must be found to reconcile the imperatives of economic growth and social equity and to harmonise technical modernisation with the preservation of cultural identity. Development strategies must also be redirected to meet the daunting demographic and environmental challenges the South faces.

Role of State

While emphasising the need to strengthen the role of the State in economic activity in the developing world, the Commission contended that decentralisation could both accelerate the decision-making process and help to enlist popular participation in development. It urged most countries to review their regulatory policies so as to ensure that they do not hinder the growth of entrepreneurship, technical advances or competition. In this context, it said that States assigning a larger role to the public sector should adopt policies which enable that sector to perform its allotted tasks with efficiency. There is thus an urgent need to improve performance as well as resource generation in public enterprises and they could succeed only if they have a high degree of financial and operational objectives and transparent accountability. In on obvious reference to the developed world's transparent efforts to link development aid to environmental action, the Commission warned that such a course would heighten North-South conflict and spill into new areas Rather than imposing new conditionalities on this count. the North should be willing to pay a substantial part of the costs incurred by the developing countries, who must now add ecological expenditure to their development budget if they are to conform to globally agreed environmental behaviour patterns. It especially asked the North to transfer to the developing world on special terms the new environmental friendly technologies such as those to replace the chlorofluorocarbons (CFCs) as part of the contribution to be paid for past irresponsibility and a gesture for future international cooperation

South-South Cooperation

Delineating the broad features of the South-South cooperation,

the Commission is of the view that to promote people-to-people contacts, restrictions on tourist and business travel among developing countries need to be greatly eased. Visa requirements should be abolished on a reciprocal basis.

It further said south-south cooperation, especially in trade, calls for substantial finance. In this context, it said additional resources should be provided to clearing and payments schemes so that their effectiveness is improved by the ability to extend credit. It called upon the World Bank to set up a facility for refinancing export credits extended by developing countries and asked it to finance an increasing number of developmental projects involving two or more developing countries. It also urged the United Nations Development Programme (UNDP) to use a significant proportion of its funds to support south-south cooperation, including the Global System of Trade Preferences (G-STP) and associations of commodity producers.

It specifically pleaded for making the GSTP an instrument for enlarging South-South cooperation. The aim should be to bring a major proportion of the South's trade within the scope of the GSTP by the year 2000. A technical service should be set up to promote the scheme's implementation and it should draw up a timetable for expanding GSTP activities in the current decade.

Debt Problem

The Commission's observations concerning debt problem deserve praise as it pointedly stated that the revival of development in a large number of developing countries requires determined international action to reverse the present trend in resource transfers which has prematurely made these countries net exporters of capital. It should be globally accepted that the level of a country's debt service payments should be linked to the level of resources it needs to maintain growth in income per head at a rate of at least two to three per cent a year. An international debt conference should be held with the participation of the governments of the creditor and debtor countries and the international financial institutions to agree on a framework solution based on this principle.

Development Fund

In a major initiative, the Commissionk has proposed the creation of a peace and development fund with the release of a substantial part of the resources by the reduction in defence budets of the advanced countries. It said a major portion of the proposed fund's resources should be set apart to assist developing countries in meeting their technological needs. This could be done by a wide-ranging programme for expanding their stock of skilled manpower through scholarships, fellowships, the establishment and expansion of higher educational facilities. It said that scientific and technological innovation in the military sphere could be redirected towards the creation of techniques and instruments for improving economic efficiency, expanding food production, combating disease and preserving the environment.

It also spelt in no unmistakable terms that the emerging development patterns of the North clearly show that the northern locomotive economies would not pull the train of sourthern economies at a pace that would satisfy its passengers– the people of the South. It said the locomotive power had to be generated to the maximum extent possible within the economies of the south themselves through the accomplishment of the maximum possible national self-reliance and South-South cooperation. In fine, the South Commission Report is a refreshingly bold document as it renews the plea for intensified South-South cooperation and calls for subserving self-reliance among the disparate group of developing countries from the southern part of the world.

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(Contd. from page 11)

way. Separate budgets were provided to these Departments and agencies for carrying out their well- defined programmes in the country. But all said and done, it appears that in the process of creating various departments. grip over the compactness of science seems to have got lost, due to its functioning in an uncoordinated manner. Further, these scientific Departments/ Agencies are now better known as Fund giving organisations among the scientific community instead of science promoting organisations in the country. This needs to be rectified.

Thus as per the old saying to cut. the cloth according to the size of the coat, we should evolve measures by utilising the planning and implementation strategies in a mission– mode concept so as to make the system work and deliver results. The growth of S&T would become meaningful only when it is related to the social and economic needs of the country and takes into account the national development plan.

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EEC Market Union And India: Some Issues

K.V. Raju

THE EUROPENAN ECONOMIC Community, which comprises twelve countries, is going to become the single largest trading bloc in the world in 1992. With the adoption of the single Act in July 1987 the community has taken the step to integrate the European market into a single common market with a monetary union in 1992. EEC accounts for 1.6 per cent of the world area and 6.5 per cent of the world population. European Economic Community with 322 million people envisages the establishment of a large market without any trade barriers. Removal of trade barriers is aimed at increasing the free flow of goods and services, labour and capital between different countries in the community. The importance of EEC can be understood from the fact that it accounts for 37 per cent of the world trade and one-fourth of the total world gross domestic product.

The merger of twelve markets of EEC in 1992 is to be taken with all seriousness by the developing countries. It will pose stiff competition for India to push its products into the EEC which has emerged as an important trading partner. The Government, private enterprise and financial institustions should evolve a joint strategy to face the situation squarely, says the author.

The twelve countries of EEC are: U.K., Ireland, France, West Germany, Luxemburg Belgium, Denmark, Netherlands, Italy, Greece, Portugal and Spain. The EEC, may be divided into two economic groups. The first category, West Germany, France, U.K., Belgium, Luxemburg, Netherlands, Denmark and Italy are the high income countries with per capita income ranging from $10420 to $15010 and the second group, Spain, Greece, Ireland and Portugal with the middle income level and per capita income varying between $2890 to $6030. Among the EEC countries West Germany is the largest exporter of goods and services. It was exporting goods worth 323.4 billion dollars in 1988 Dominance of West Germany can be understood from the fact that the second largest exporter France was exporting only 167 8 billion dollars worth of goods and services in 1988. The unification of two Germanies may still give a much dominant role for Germany in the EEC.

Implications

The unification programme of European market will have widespread and far reaching implications both for the developed and developing countries in the world. Already industrialised countries like Japan and U.S A. have started spadework to face the eventuality of Europe becoming a common market in 1992. It is visualised to reduce considerably the cost of production, stimulate economic efficiency and encourage creation of job opportunities within the community. The unification programme can make a vital contribution to the competitiveness of commerce and industry and act as a motive for European integration. This is particularly important because European Economic countries are at present facing great competition from U.S.A. and Japan in marketing their products in the international market The major proposals of Europe 1992 may be stated as:

a) Removal of all border controls between the EEC member states
b) Freedom of capital movement , financial service institutions including banks to do financial services throughout the community.
c) Removal of all technical and fiscal barriers throughout the community
d) Removal of transport controls and the establishment of European Central Bank for monetary and banking integration
e) Harmonisation of different laws and regulations.
f) It is also visualised to reform the public procurement system where the intra EEC trade is negligible

The integration of Europe will have wide implications and consequences for India Indian Exports to EEC countries were approximately Rs 4946 crores out of the total of Rs. 20295 15 crores exports in 1988-89, constituting almost a quarter of India's exports. Similarly, imports from EEC to India were Rs 9022 crores, out of the total of 28193.65 crores constituting one-third of our imports. It is to be noted that our trade with EEC has increased enormously during the last two decades. From just 282 crores in 1970-71 Indian exports to EEC countries increased to 4946 crores in 1988-89 A similar trend is noticed in the case of imports from EEC countries. From 320 crores of total imports from EEC in 1970-71, Indian imports have increased to 9022 crores in 1988-89. Interestingly the

balance of trade has increased considerably in favour of EEC.

India's performance as exporter to and importer from the EEC is quite good when compared with the performace of other major trading partners of the EEC from Asia. Only South Korea and Pakistan, among the major Asian countries, registered higher growth rate in exports than that of India during the period 1981-87. India's exports have kept this pace due to the depreciation of rupee against most of the currencies of EEC countries. Another important factor to be mentioned here is that India's share in EEC's total trade amounted to only 0.30 per cent whereas its exports amounted to 0.70 per cent during the peirod 1981-87.

Table 1

India's Trade with E.E.C.

(Rs. Crores)

Year	*Exports*	*Imports*	*Trade Balance*
1970-71	282	320	− 38
1980-81	1447	2639	−1192
1981-82	1417	3334	−1917
1982-83	1470	3422	−1952
1983-84	1756	3962	−2206
1984-85	2002	4222	−2220
1985-86	1929	5234	−3305
1986-87	2736	6541	−3805
1987-88	3957	7441	−3384
1988-89	4946	9022	−4076

Source: Centre for Monitoring Indian Economy, Basic Statistics Relating to Indian Economy, Vol. I., August, 1989.

There is a growing feeling among both the developed and developing countries that European Economic community is going to become an economic giant and the trade policies which are going to be adopted will be protectionist and discriminatory. However there are both gains and losses for India when Europe becomes a common market in 1992. Market integration may reduce cost of production, rate of inflation and this will in turn result in a more favourable terms of trade with the EEC. Another benefit of the unification programme is the single quota arrangements replacing the present system of MFA quotas for every EEC member country. India's agro-based industry may also benefit because of the common agricultural policy adopted by the community. India's exports of items like tea, coffee, tobacco etc. will also increase because of the removal of border restrictions and harmonisation of various taxes. However, there are various other sectors which are going to suffer owing to the unification programme. EEC may adopt some discriminatory and protectionist policies to avoid competition from other countries. This will have more adverse impact on the developing countries than the developed countries. Due to the expansion of market and also due to the special policies followed by EEC, many multinational corporations may amalgamate, join together or start joint ventures with companies in the EEC to have greater access to the common market This will have an adverse impact on the Indian companies because they cannot compete with these giant companies. Another important thing to be mentioned here is that the present quality regulations will be more strict and integrated after the unication programme. Suppose we are not going to take more rigid and drastic measures to upgrade the quality standards of our products, this regulation may seriously jeopardise our exports to EEC. At present we are enjoying some concessions in some EEC countries due to our special political and bilateral trade relations. After the unification we may not be getting any preference or consideration from these countries.

Banking sector is going to affect seriously due to the market integration. As already mentioned freedom of capital movement and financial services throughout the community is a major feature of the unification programme. According to the second banking directive there will be a single banking licence throughout the community. Further, there are some prohibitions if the banks are not established locally. After 1992, a non EEC bank will no longer be able to set up a branch or a subsidiary in the EEC countries if that bank's home country does not offer reciprocal treatment to banks from all EEC member counties It is to be mentioned that the number of branches of Indian banks in EEC is limited. Indian Banks do not have any subsidiaries or joint ventures in any of the EEC countries. Further most of the Indian banks are not having enough capital to extend their sphere of operation. Thus unless steps are taken to start joint ventures or amalgamate different banks, Indian Banks in EEC will have to confine to their present area of operation.

Thus, the foregoing analysis reveals that the fears of the developing countries are well founded. As India has one-fourth of its trade with EEC, it is more imperative and important to take effective measures to counter the adverse impacts caused by the unification programme. In order to compete in the EEC market steps should be taken to upgrade our technology and reduce the cost of production of products. Government, private sector and financial institutions should come forward and evolve a suitable strategy so as to benefit from the integration process in Europe □

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Nehru And The Planning Process

N.M. Panda

JAWAHARLAL NEHRU often asserted that the human environment is very broad and deep. An individual, by identifying himself to a single rigid body of doctrine cannot face the complexities of such an environment. He said "Life is too complicated and as far as we can understand it, in our present state of knowledge, too illogical, for it to be confined within the four corners of a fixed doctrine". He laid stress on both the material and non-material components of human life to attain material progress through systematic economic planning and non-material development through promotion of art, culture, freedom and peace. The salient features of his philosophy are:

On the occasion of the 101st birth anniversary of Pandit Nehru, the architect of modern India, the author recalls the services rendered by him in laying the foundation of Planning. The author says that all the sectors of the Indian economy had the stamp of Nehru's scientific ideas who strove for strengthening the country's socio-economic fabric.

Dynamic and continuous economic plans for establishing a classless society based on cooperative effort with opportunities for all. This has to be realised by pursuing peaceful methods in a democratic way.

Pragmatism, activism and flexibility. This action-oriented philosophy is backed by his own words, "The call of action has long been with me; not action divorced from thought, but rather flowing from it in one continuous sequence and when there has been full harmony between the two then I have sensed a certain fullness of life."

Assuming fatalism to be an anathema, he was of the opinion that man should be industrious and dedicated to the cause of his development.

Scientific approach, not religious and superstitious belief. Science revolutionalises human life and it is with the temper and approach of science, allied to philosohy, that we must face life

When the Five Year Plans were launched during his tenure as Prime Minister, he stressed the need for balanced growth by maintaining harmony between agriculture and industry. In the First Plan, the stress was on agriculture. In the Second Plan, the emphasis was shifted to public sector by giving priority to industry to build up a socialistic pattern of society. The aim was not merely to nationalise but ensure that certain fields of activity remain sacrosanct for the state. In the Third Plan the thrust was shifted to social service. In fact, Pandit Nehru urged the Planning Commission to give priority to social service so that education, health service and other basic amenities of life reached the comman man.

Managerial Ability

Nehru was quite familiar with the modern aspects of management. The objectives set in the three successive Five Year Plans maintained the principles of harmony and linkages for the attainment of long term goals.

Targets set in the Plans were never blue sky targets, rather they gave enough scope in a democratic way (planning not by stick but by carrot) for utilising personal ability and innovative skills. Proper feed back was also taken to see that the goals were not below standard or vague. In fact, when he was not satisfied with the objectives of the First Plan, he told the National Development Council, "Planning was not putting down just as you want: planning is not merely giving priority to all things which you wish to do. Planning is something wider and deeper". He pointed out that planning should be flexible to accommodate change as and when necessary. For instance, when Panditji felt that the first two Plans could not give social benefits to the people, he immediately made his mind to give priority to social services in the Third Plan.

Another aspect of his managerial ability was timely action and close involvement. In spite of his political activities and engagements, Pandit Nehru found time for the work he liked. One will be surprised to note that he could attend most of the meetings of the National Planning Commission. During his Prime Ministership he dropped in at least twenty times to the Planning Commission Office to see that everything went right.

Impact

It is indeed doubtful whether the economic development based on Nehru's economic philosophy can be measured. The non-material progress, spiritual development and the quantum of

peace and freedom can hardly be measured by any unit or be expressed in quantitative term. The development of the quality of human life during his leadership is only a matter of feeling and experience. However, the material aspect of economic development can be reviewed through economic indicators.

The First Five Plan has been reviewed to be successful. The rise in the national income was more (18.4%) than the target and per capita income increased by 8.2% The rate of savings increased from 5% to 7% over the period. In a nutshell, the spell of economic stagnation was broken to lay a strong foundation for the Second Plan. During this Plan period the national income increased by 20% and the per capita income by 7.5% The rate of domestic saving also went up from 7% to 8 5% The Table given below indicates the progress achieved during the First and Second Five Year Plans.

During the First Five Year Plan, the nation registered rapid growth in agriculture and irrigation and the Second Plan witnessed a significant industrial development particularly in basic and heavy industries Unfortunately, the Chinese aggression and drought had adverse impact on the Third Five Year Plan. During the Plan period, the national income at 1960-61 prices rose by 20% in the first four years and registered a decline of 5.6% in the last year. Per capita income at the end of the Plan was about the same as it was in 1960-61. However, there was progress in the soical services like power, transport, education and health.

During the period 1950-51 to 1965-66, there was change in the share of agriculture and industry in the total national income of the country. This change has been reflected in Table 2. It can be observed that the share of industry in the total national products registered an increase during the period.

After discussing the impact of Nehru's economic ideas on Indian economic development through some economic indicators let us recall the remarks of some reputed economists. S.K. Iyengar says, "The democratic planning in India with about 450 million population is undoubtedly the most significant experiment without any precedent or parallel anywhere in the world . with fifteen years of democratic planning in India and the degree of success achieved, a psychol of hope and faith has permea the developing countries in So America. South and Middle A and Africa." According to Norm D. Palmer, "Nehru was Indi supreme nation-builder. sought to build a nation not onl terms of political institutions, also in terms of mental emanci tion and economic and so progress " Michael Brecher sa "India's progress is m impressive measured both agai its own previous conditions a against the record of any ot country."

Nehru's ideas and his desire build India as a prosper country through democratic a socialistic means and scienti temper contributed a lot to economic development proce Without his ideas, and action development through continu economic planning, the count would have not experienc integrated and balanced growth it had during the period of leadership.

Nehru picked up econon concepts from different Schools Economics but he never gave bli support to any particular dogn After analysing all the doctrines stood for a living philosphy full dynamism, pragmatism, activis

Table 1

Statement of Progress Achieved

Item	*1st plan (percentage)*	*2nd plan (percentage)*
Industrial production	39	41
Agricultural production	22	20
National Income	18 4	20.4
Per capita Income	8 2	7 5
Rate of investment	8	11
Rate of domestic savings	7	8 5

Source: The Economic Philosophy of Pt Jawaharlal Nehru by O P Mishra

Table 2

Contribution of various sectors to total National Income

(At 1948-49 prices)

Sector	*1950-51 %*	*1955-56 %*	*1960-61 %*	*1965-66 %*
Agriculture	49 0	47 9	46 4	39.0
Industry	35 5	35 6	35 9	38 5
Services	15 5	16 5	17 7	22 5

Source: Economic Survey (1968-69)

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Indian Agriculture And its Vast Potential

Ikbal Kaul

"INDIAN AGRICULTURE has made impressive progress in the last few years," said Norman Borlaug, the father of the green revolution, recently in Madras, "and spectacular increase has been achieved especially in sugarcane, cotton, oilseeds and cereals. I think a little more push to boost pulses yields and improve the productivity of drylands should put the country on a comfortable footing."

Indian agriculture is no longer a gamble in the monsoon, as was the oft-quoted obiter dicta before Independence. The successive five year plans have given agriculture a pride of place in the national economy. Today it provides livelihood to 58 crores against 29 crores in 1950-51, contributes 30% to the Gross Domestic Product and accounts for over 10% share in exports.

The per capita availability of foodgrains has gone up from 395 gm per day in the early 'fifties to 478 gm in 1986. In 1987, it was estimated at 465.5 gm.

The cropping pattern is now more diversified and cultivation of commercial crops has been given new impetus in line with domestic demands and export requirements. Non-traditional crops are gradually gaining importance. A short duration third crop is also being raised in some areas, utilising the residual moisture available from post-*kharif* and post-*rabi* cultivation.

The area, production and yields have shown spectacular increases. The result has been that the almost doubling of population from 36.1 crores in 1951 to 68.5 crores in 1981 has been sustained on adequate food supplies. In 1950-51, the area under foodgrains was 973.2 lakh hectares, which has gone up to 1187.0 lakh hectares in 1987-88. The production of foodgrains has gone up from 508.2 lakh tonnes in 1950-51 to 1722.5 lakh tonnes in 1988-89. The target for 1989-90 is 1758.2 lakh tonnes. The yield per hectare has more than doubled, from 522 kg in 1950-51 to 1,166 kg in 1987-88.

Production of oilseeds has more than trebled, from 51.5 lakh tonnes in 1950-51 to 178.9 lakh tonnes in 1988-89. Availability of edible oil has increased significantly and its production in 1987 was 9.4 lakh tonnes.

The output of sugarcane has shown a rising curve and is likely to reach the record level of 2100 lakh tonnes during 1989-90, from 570.5 lakh tonnes in 1950-51. The area has nearly doubled from 11.7 lakh hectares in 1950-51 to 32.8 lakh. hectares in 1987-88. The yield has increased from 33.42 tonnes per hectare to 59.85 tonnes in the same period. Almost an eightfold increase has been achieved in sugar production, from 11.3 lakh tonnes in 1950-51 to 85 lakh tonnes in 1986-87 and now over 100 lakh tonnes in 1989-90 sugar year.

India is the first country to evolve a cotton hybrid, a cross between the long-and short-stapple variety. The area sown to cotton in 1950-51 was 58.8 lakh hectares, going up to 64.7 lakh hectares in 1987-88. The production has more than doubled, from 30.4 lakh bales of 130 kg each to 64.3 lakh bales in 1987-88.

The production of jute in 1950-51 was 33 lakh bales of 130 kg each. In 1987-88, it rose to 58 lakh bales. The area sown was 5.7 lakh hectares in 1950-51, going up to 6.9 lakh hectares in 1987-88. The yield increased from 1,043 kg per hectare to 1,495 kg.

Poultry farming has progressed by leaps and bounds. The egg production, which was 180 lakh in 1950-51, increased to 1780 lakh in 1987-88 Broiler production, which was virtually non-existant in 1961, exceeded 900 lakh birds in 1987-88.

India produces ten lakh tonnes of meat from various species of liveestock. In 1986-87, meat and its products worth Rs. 68.8 crores were exported.

Dairy development has assumed an important position in the rural economy. From an annual production of 225 lakh tonnes of milk in 1971-72, it has shot up to 515 lakh tonnes in 1989-90. The expectation is that it would go up fruther to 544 lakh tonnes in 1990-91. In 1970, dairy development was taken up in right earnest by launching a project called Operation Flood. Its ongoing third phase (1987-94) has an outlay of Rs. 915 crores. The project is being financed by a World Bank loan and IDA credit of Rs. 486 crores and the EEC commodity assistance of Rs 222 crores (75,000 tonnes of skim milk powder and 25,000 tonnes of butter oil).

Tracing the rapid growth of Indian Agriculture and its significant contribution to the national economy, the author feels that Indian agriculture has vast potential and can feed even larger population provided irrigation targets are met and lands managed judiciously.

The aim is to build a viable national dairy industry on

cooperative lines. By March 31,1990, over 70 lakh families had been brought under the cooperative ambit through a network of 60,750 dairy societies spread over 168 milksheds in the country. In 1987-88, the societies procured on an average 98 lakh litres of milk per day, and marketed 72 lakh litres per day.

The productivity of fruits has increased by about 64% during the last 30 years. Thirty-seven varieties of major vegetable crops, including some hybrid varieties, and 25 varieties of potato have been developed with characteristics of high yield and resistance to major pests and diseases. The area under potato has increased by nearly 75% and productivity by 25%. The production of potato in 1988-89 stood at 148.9 lakh tonnes.

The breakthrough in agricultural productivity was achieved in 1966-67 with the advent of the green revolution, when the programme of high-yielding varieties was launched on a war footing. It was a judicious mix of inputs and building up of infrastructure. These include fertiliser, quality high-yielding seeds, pest control, mechanisation and water and soil management.

Four decades of development has made India the fourth largest producer of nitrogenous fertilisers in the world. There are 42 large factories producing a wide rage of straight nitrogenous, complex and phosphatic fertilisers. Besides, 70 small units produce single superphosphate and six units manufacture ammonium sulphate as a by-product from steel plants.

The consumption of fertilisers increased from 66,000 tonnes of nutrients during 1951-52 to 110.3 lakh tonnes in 1988-89. The estimated use of fertilisers in 1989-90 is about 116.9 lakh tonnes. Per hectare consumption has increased from half kg to 62.69 kg. However, a wide variation in fertiliser consumption exists. It varies from 159 kg in Punjab to about 5 kg in Assam. Several schemes are under way to stimulate fertiliser use in low consumption areas.

Several steps to improve the quality of seeds and increase their production and distribution have been taken. The Central government had set up the National Seeds Corporation in 1963 and the State Farms Corporation of India in 1969 to encourage the production and distribution of quality seeds. Also, 13 State Seed Corpoations have been estabilished to supply improved seeds to the farmers

The government have implemented a new seed policy from Oct. 1, 1988. The thrust of the new policy is to secure for farmers top grade seeds available anywhere in the world to maximise yields. Till March 31, 1990, 96.94 tonnes of seeds were imported. Besides, 1 21 million of planting materials were imported.

The production and distribution of seeds is going up progressively.

The main thrust in plant protection is the promotion of an integrated pest management programme to reduce dependence on chemical pesticides, to minimise environmental pollution and adopt techniques for averting crop damage due to pests and diseases. In all, 32 stations provide pest surveillance service. Besides, 11 Central Biological Control Stations, apart from conserving predators/ parasites, release on mass scale natural enemies of pests.

India started the manufacture of pesticides in 1952 with the setting up of a BHC plant near Calcutta. Currently, 47 units are producing technical grade pesticides and over 500 units are making formulations. About 60,000 tonnes of pesticides are manufactured, and only 1,260 tonnes are being imported. However, pesticide damage is closely monitored Consequently, four pesticides have been banned and restrictions have been imposed on eight insecticides. One toxic pesticide has been phased out of use and registration has been refused to 18 insecticides.

The use of farm machines has increased considerably. About 4,500 small-scale units are engaged in the manufacture of agricultural implements and hand tools, with an yearly proudction of about Rs. 294.2 crores. Tractors are being manufactured by 19 units, with an installed capacity of 1.24 lakh machines per year. In 1987-88, the number of tractors sold was 93,157; in 1988-89, it was 1,10,323 and up to Dec. 1989 it was 99,794. The production of tractors in 1951 was 8, 600.

The licensed capacity for harvester combines is 546. The sale in the last three years was 144, 94 and 136. However, the acceptance of power tillers has not been encouraging. Five units have an installed capacity of 16,000 machines. During the last three years, 3,097, 3,496 and 3,756 machines were sold.

Water management is a key factor in agriculture. The irrigation potential created before 1951-52 was 226 lakh hectares. Of this, 97 lakh hectares was from major and medium irrigation projects and 129 lakh from minor schemes. By the end of 1984-85, the cumulative irrigation potential increased to about 675 lakh hectares. Of this 300 lakh hectares is from major and medium projects and 375 lakh hectares from minor schemes. During 1985-87, a further irrigation potential of 9.7 lakh hectares was added through major and medium schemes and 21.5 lakh hectares through minor projects.

The target of 1130 lakh hectares of irrigation is envisaged to be achieved by 2010. Of this, the major and medium projects would provide 580 lakh hectares and 550 lakh hectares would be through minor schemes.

From 1951 to 1985, 246 major and 1,059 medium projects were taken up. Among them, 65 major and 625 medium schemes were completed by 1985. During the 7th plan (1985-90), 18 new major and 66 new medium projects were undertaken. Of the 199 major and 499 medium projects in hand, 58

major and 303 medium projects are expected to be completed during the 7th plan.

The foodgrain requirement of India by the turn of the century would be around 2400 lakh tonnes, which is about 700 lakh tonnes short of the current production. According to agricultural experts, an additional area of 580 lakh hectates has to be brought under the plough. The outlook, however, is not encouraging because in the next decade, near 1860 lakh hectares of agricultural land is likely to be diverted to meet the demands of housing, roads and industries.

With this scenario, the Central government has framed its draft agricultural policy, which envisages a growth rate of 6% during the 8th plan, with an outlay of Rs. 250,000 crores, The compound growth rate in farm production from 1949-50 to 1987-88 is 2.65%. It aims at halving the number of people engaged in farming in the next 20 years. The adoption of scientific farming is expected to raise per capita income in the agrarian sector to at least the lowest levels in the organised (industry and commerce) sector.

India's food production has managed to keep ahead of the population growth, which has helped her through some of the most critical drought years. Now the key question is: Can India's lands support such a large and growing population ? the answer is positive yes

In 1983, the FAO issued an extensive study "Potential Population Supporting Capacities of Lands in the Developing World." It reported that the population supporting capacity of India's irrigated and rainfed areas together was 1.56 persons per hectare in 1975, compared to 1.93 that really existed then. In other words, India had in 1975 11.9 crores—or 19% of the population—more people than its lands could support.

By AD 2000, India is expected to have a population of 103.67 crores with a density of 3.23 per hectare. Because of the increased output from irrigated lands even at a low level of inputs, India's land can support a population density of 3.24. At intermediate and high levels of inputs, the corresponding figures would be 5.62 and 8.18. If India can keep to its irrigation targets and manages its lands properly, it can feed for bigger population.

On the other hand, Prof, S.K. Sinha of the Indian Agricultural Research Institute points out that with 1430 lakh hectares of arable land and average yields of 41 tonnes per hectare from irrigated lands and 2 tonnes from non-irrigated lands— extremely low yields by world standards—should give India a total production of 4260 lakh tonnes of grains. Assuming that a part of this land is used for non-grain crops, India should still be able to achieve a target of 3500 lakh tonnes of grain. But the gap between the potential and performance is vast and seems unbridgeable for the moment. □

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and spontaneously drawn towards the teaching-learning process. And the interest generated can be sustained only this way

But this requires lot of empathy and sensivity on the part of the volunteers. It also requires lot of patience, tolerance and fortitude. All this, therefore, will necessarily have to be an integral part of the traning process. Traning must equip the volunteers with life-skills and communication-skills. It must equip them with the tools and techniques of establishing a total identification or rapport with the learners Training must make them more humane, sensitive and empathetic It is only when we have such volunteers who are willing to impart literacy not out of benediction or patronage but out of a genuine concern for the plight of these unfortunate sections of society, that we can have some silver lining in the programme which is otherwise one of the most complex and difficult, which involves a long drawn out process and where instant results are not achieved.

We are at the threshold of a new era where we cannot shut our eyes to this burning problem of eradication of illiteracy and say 'Literacy can Wait" Literacy definitely cannot wait. Literacy is not an end by itself; but only a means to an important end, the end being individual and social transformation. This cannot be brought about by any single individual or intitution or agency and far less by the Government. This will have to be a collective effort of those who believe in he need for and relevance of literacy and those who view literacy as a tool or weapon for social change. The slogan today, therefore, should be "Now or Never." □

The author is DG, National Literacy Mission

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flexibility and scientific temper. Through this philosophy he put all his efforts to develop India's economic condition through continuous planning activities. His aim was to establish a classless society based on the cooperation of the people. It was his ideas and leadership which ultimately ensured India a stable and balanced economic growth for raising the quality of life of the people. His managerial ability played a catalytic role in translating his ideas into action. All the sectors of the Indian economy had the stamp of his scientic ideas. His emphasis on basic and heavy industries, scientific research and technological progress was recognised and appreciated not only during his time but also after.

As an eminent statesman, writer, thinker and a great visionary, he left no stone unturned to strengthen India's socio-economic fabric. He was really the builder of modern India.

Soil Conservation: Impact on Crop Production – A Case Study

N. Prem Kumar

The author evaluates the performance of the Soil Conservation Scheme in the catchment areas of the Mayurakshi river in Bihar. He says, although the conservation programme is mainly designed for soil protection, it has been proved that the programme also generates productive assets. The author asserts that increase in the value of assets is far more than the cost of cultivation.

SOIL CONSERVATION programmes are implemented in the catchment areas of river valley projects by State Governments as part of Centrally sponsored schemes (some of the areas are also covered under normal State Plan Programmes). The major aim of these programmes is to improve agricultural production, ensure ecological balance and reduce the rate of siltation in the reservoir.

The Mayurakshi river originates in the north eastern parts of Bihar. After flowing a distance of 134 kms it joins the river Bagirathi in West Bengal. It has a total catchment area of about 8,850 sq. kms. The reservoir is across the river within the borders of Bihar extending over 1.86 lakh hectares. So far an area of 0.48 lakh hectares has been treated with soil conservation measures, involving an overall investment of Rs. 544 lakhs

This paper, however, discusses in detail the "increase in crop production due to soil conservation measures."

Nearly 63 per cent of the catchment area is under cultivation. A major part of it, in the low lands, is under paddy cultivation. Paddy and maize crops, along with arhar are grown in the Kharif season. In the Rabi season, wheat, kulthi and arhar are grown in some low lying areas. Six per cent of the catchment area forms the forest cover. The present land-use pattern is given in Table-1.

Before the construction of Masanjore dam, known as Canada Dam, across the river Mayurakshi, the rate of siltation of the river was 3.7 ha.m/year/100 sq. km. The dam is designed to irrigate an area of 2.3 lakh hectares in the districts of Birbhum, Murshidabad and Burdwan in West Bengal, and 0.1 lakh hectares of land in Dumka district of Bihar.

The life of the reservior built in 1954, was assesed to be 100 years However, within a span of 11 years, from 1954 to 1964, the observed siltation rate was 13.2 ha.m/year/100 sq.km. At this rate, nearly 4.4 percent of the total reservior capacity has been lost within a period of 11 years

In the catchment of Mayurakshi river valley project, ten mini-watersheds were saturated upto May 1987-88. As the purpose of the present study is to assess the impact of soil conservation programmes in the saturated mini-watersheds, five (50%) of such mini-watersheds were selected.

The selection was made i consultation with the projec authorities, the ciriteria o selection being spread of saturate mini-watersheds in the catchment and the period of saturation.

The following five mini watersheds were selected fo detailed study:

The gross cropped area in th sample watershed is over 341 Ha which is nearly 94 per cent o the total cultivatable land. But th net sown area is nearly 232 Ha which is 63 8 per cent of tota cultivable land. Table-3 gives th season-wise land under cultivation

As the main purpose is t increase crop production an yield through soil conservatio programmes, the details o

Table 1

Land use in catchment areas

Type of land	*Area in sq. km*	*% of the total area*
Cultivable Wasteland	443.20	23.80
Cultivated Slopy land	347.30	18.70
Paddy Land	816.90	44.00
Forest Land	113.70	6.10
Pasture Land	139.30	7.40
Total	1860.40	100.00

Source : Department of soil conservation, Dumka, Bihar.

investment on cultivation and the extent of returns received is given in physical as well as monetary terms. Crop-wise physical inputs have been tabulated for three main crops— paddy, maize, and *kulthi* for the sample watersheds.

Paddy is the main crop grown on 163.2 Ha. in the sample watersheds. The average quantity of seed used per Ha. is reported to be 70 kgs. This quantity seems to be alright, as the average seed requirement for transplantation is between 70 to 80 kgs.

Compost manuring is also widely practised in the area, and the average per Ha usage is reported to be 13 cart loads in the sample water-sheds. Fertilizer application in Dumka district is nearly 13 Kgs. per Ha. However, in the sample watershed, the average fertiliser application is 35 kgs. This varies from 67 Kgs to 66 Kgs used in sample watershed Pesticides usage is negligible

Maize is grown on 68.7 Ha of land during the Kharif season. The average seed application is nearly 36 Kgs. per Ha. in the sample watersheds. It seems that in the area more compost manuring is done. The average manure application in the sample watershed is 16 cart loads.

The respondents, in the sample watersheds, have reported that they apply more fertiliser to maize crop than to paddy on an average 52 Kgs. as compared to 35 Kgs. per Ha. In the absence of any dependable source of irrigation, the main crop grown during rabi season is *Kulthi* The area under this crop is 109.3 Ha in the sample watershed. Seed application is 37 Kgs. A meagre amount of nearly two cart load of compost manure is used in the sample areas. Fertiliser and pesticide application reported from the area is nil.

Returns

For the computation of data on returns from cultivation, both main and bye-products have been taken into account for all the three crops. The average yield of paddy in the sample watershed area is reported to be 8.8 quintals per Ha. (Table-5) which was less than the average for the entire project area of 10 to 12 quintals per Ha. The bye-product of paddy is reported to be 12 3 quintals per Ha. in the sample watersheds.

In the sample watershed areas the reported yield of maize is 7 quintals per Ha. The yield of bye-product is reported to be 11.5 quintals per Ha. The yield of maize in the sample watershed is similar to the average yield of 8 to 10 quintals in the project area.

Kulthi, which is grown on 109.3 Ha. of land, gives an average yield of 2.6 quintals per Ha. in the sample watersheds. This is nearly 25 per cent more than the usual yield of the area The yield of the bye-product in the area is 3.4 quintals per Ha.

Table 2

Sample mini-watersheds

Name	*Code No.*	*Total (Hec)*	*Treated (Hec)*	*Treatable (Hec)*	*Expen. (Rs.)*	*Priority*
Harida	Mf2c	6144	1573 56	1525 00	17 54	Medium
Silway	Me2h	3072	1447 54	1335 00	36 59	Medium
Yamuna	Mc1c	6400	2018 85	1980 00	17 92	Low
Lower-Pusaro	Ma2c	3418	668 81	245 00	14 44	Very-high
Lathi-ajore	Mc2b	5120	816 00	813.00	6 85	Medium
Total:		*24,154*	*6524 76*		*93.34*	

Source: Department of soil conservation, Dumka, Bihar

Table-3

Season-wise land under cultivation

(in Ha.)

Code No.	*Total sample size*	*Total cultivable land*	*Total Cultivated Land Kharif Paddy*	*Maize*	*Total*	*Rabi Kulthi*
Mf2c	50	55 7	27 5	10 50	38.0	17.7
Me2h	50	80 0	40 0	17 00	57 0	23.0
Mc1c	50	45 1	23 3	9 30	32.6	12.5
Ma2c	50	94 1	38 0	17 38	55.8	38.8
Mc2b	50	66 3	34 4	14.63	49.0	17.3
Total	250	341 2	163.2	68.70	231.9	109.3

The investment on 1 Ha. of paddy cultivation in the sample watersheds is Rs. 1046 while the return on investment is Rs. 2067 (Table-6). As can be seen, the computed cost benefit ratio for paddy is 1:1:97

In the case of maize the cost of cultivation is Rs. 1255 per Ha. while the total income is Rs. 1572. Thus, the cost benefit ratio works out to be 1;1.25

In the sample watersheds, *kulthi* seems to have given a better return than the maize crop. The per Ha. cost is Rs. 570, while the return is Rs. 904. The cost benefit ratio thus works out to 1:1.60 (Table-6)

For all the three crops paddy, maize, and *kulthi*, the total cost of cultivation in the sample watersheds is Rs. 2,875, while the income generated is Rs. 4,543. The overall cost benefit ratio for all the crops is 1:1. 60.

It is obvious that the return from investment on agriculture is more attractive in the sample watershed areas. This indicates that the soil conservation measures taken up in the areas have certainly improved the moisture retention capacity of the soil. This is more evident in the case of *kulthi* crop grown during the Rabi season and has more yield in the sample wat[e] areas. The respondents asked to asses the exte[nt] changing pattern of the crop between pre and post-RVP p[eriod]. The tabulated data (Table-7) s[hows] that the average increase i[n] crop yield is between 20 and [..] cent in the sample wate[rshed] areas. This increase, undoul[btedly] is due to soil conser[vation] measures taken up in the ar[eas] there is no perennial sour[ce of] irrigation.

Implementation of de[velop]mental activities is expect[ed to] contribute to the progress

Table 4

Average Physical Inputs

Crops	Total area (Ha)	Seed (kgs)	Manure (cart)	Fertiliser (Kgs)	Pesticides (Rs.)
Paddy	163 2	70	13	35	303
Maize	68 7	36	16	52	107
Kulthi	109 3	37	2 3	—	—

Table-5

Average yields

Crops	Total land (Ha)	Main Product (qtl)	Bye product (qtl)	Yield/Ha Main (qtl)	Bye (qtl)
Paddy	167 2	1440	2017	8.8	12 3
Maize	68 7	479	796	7.0	11.5
Kulthi	109 3	286	376	2 6	3 4

Table 6

Incremental income

Crop	Expenditure (Rs.)	Income (Rs.)	Cost-benefit (Ratio)
Paddy	1046	2067	1·1.97
Maize	1255	1572	1·1 25
Kulthi	570	907	1 1 60

Table 7

Increase in crop yield pre and post RVP (Qtl.)

Watershed Code	Paddy Pre	Paddy Post	Maize Pre	Maize Post	Kulthi Pre	Kulthi Post
Mf2c	9 0	12 0	6 0	8.0	2.0	3.0
Me2h	7.0	8.6	6 0	7.0	2 0	3.0
Me1c	7.5	9 2	5 0	6 0	3.0	4.3
Ma2c	6.0	7 6	5 0	7.0	1 0	1.5
Ma2b	6.0	7.5	5.5	7 0	2.0	2.8
Total	7.0	8.8	5 5	7 0	2.0	2.9

prosperity of the people in the targetted area. The benefit thus accrued is usually assessed in relation to the cost incurred to justify the investment made. Such benefit is tangible. While the tangible or direct benefits are visible and can be quantified, the cost-benefit analysis of such developmental programmes, may help in justifying the investment made on them.

Direct benefit from agricultural lands are obtained in terms of increased crop yields. Nearly 85 per cent of the soil conservation works have been carried out in agricultural land. The increase in crop productivity in the case of paddy is reported to be 1.8 quintals per Ha. At current rates the benefit-cost ratio in agricultural land works out to 1.8:1.

There has been an increase in crop production due to soil conservation measures. Fifty per cent of the benefits is attributed to soil conservation measures, and the remaining to improved seeds, fertilisers, pesticides etc. This is quite encouraging for farmers.

Benefit-Cost Ratio Agriculture sector

Cost	*Rs. in lakhs (@current rates)*	*Returens (@ 50% gross)*	*Benefit (Rs. in lakhs)*
Cost of work	636 5	2,246.59	1123.29

Benefit-Cost ratio 1.8 : 1

Conclusions

Although the catchment has been adopting soil conseration programme mostly for soil resource protection, it is now established that the programme also generates productive assets. The increase in the value of assets is far more than the cost of cultivation. More water becomes available. Land becomes secure for production. Soil conservation as a basic measure, and improved agriculture and forestry built upon it as super structures, is the right model of development of land, water and human resources, in the catchment.

No river valley project should be sanctioned unless detailed plans and benefit-cost ratios have been prepared. Improved conservation strategy for the RVP Plan should be followed. The Improved strategy should include small storge structures for sediment storage and levelling is to be accorded due priority as it is an ideal way of reducing runoff and sediments, and increasing crop yields.

The author is Project Associate, A.S.C.I., Hyderabad

Changes In Cropping Pattern: A Case Stud

Dr. Rudraraju Krishna

There has been a massive shift in the cropping pattern in Guntur District of Andhra Pradesh. A case study reveals that suitability of the soil, impressive growth in yield rates and comparatively higher profitability are the main factors responsible for the shift towards cotton cultivation.

RADICAL CHANGE marked the cropping pattern in Guntur District of Andhra Pradesh during 1969-70 to 1986-87. The cropped area under cotton increased from 11.4 thousand hectares in 1969-70 to 187.3 thousand hectares in 1985-86. The significant increase in the area of cotton was not only at the cost of major commercial crops such as tobacco and chillies, but also many other food crops. An attempt is made in this paper:

(i) To analyse the changes in the overall cropping pattern in the district,

(ii) To identify the effect of increase in the cotton area on various crops, and

(iii) To focus the major factors responsible for the massive shift in the cropping pattern.

Changes

During the period under reference, there were substantial changes in the cropped area. It was shared between different crops falling under two groups, viz., Food Crops and Non-Food Crops.

After the Nagarjuna Sagar Project (NSP) canals water was made available to the district, paddy became a major crop and continues to be so. As such, its proportion in the gross cropped area increased considerably. Paddy crop alone accounted for about 40 per cent of the total cropped area in the district.

Jowar, bajra and varagu crops falling under Food Crops Group were affected by the enormous increase in the area under cotton crop during the period. The area devoted for cultivation of food crops (about two lakh hectares) represented 22.9 per cent of the total cropped area in the district in 1969-70. It declined to 2.1 per cent (about 17 thousand hectares) by 1986-87. The area under chillies which also falls under the category of Food Crops came down from 6.6 per cent in 1969-70 to 3.2 per cent in 1986-87. A part of the area devoted to jowar, bajra, varagu and chillies was shifted to paddy, due to assured irrigation from Nagarjunasagar canal. However, a large part of the unirrigated land under these crops was shifted in favour of cotton.

As a result of heavy decline in the cropped area under jowar, bajra, varagu and chillies, the proportion of 'Food Crops' group in the total cropped area declined substantially. It declined from 83 1 per cent in 1969-70 to 70.6 per cent in 1986-87. Consequently, the percentage share of Non-I Crops group went up.

The proportion of acr under Non-Food Grops gı increased from 16.9 per cei 1969-70 to 29.4 per cent in 19ℓ thanks to heavy increase in acreage under cotton. proportion of the cotton area ii district's total cropped increased from 1.3 per cen 1969-70 to 16.3 per cent in 198

Tobacco falling under Non-I Crops group was mainly affe by the increase in the area u cotton. Its share in the cropped area in the district c down from 4.6 per cent in 196 to 0 6 per cent in 1986-87. proportion of the groundnut in the total cropped area exhil a mixed trend. However, its sl in the total cropped area decl in 1985-86 and 1986-87. The e of cotton on groundnut crop significant only for a few yea

It is evident, therefore, apart form tobacco and chi which lost ground to co cultivation, a large extent cropped area under jowar, b and varagu crops was also shi in favour of cotton.

Reasons

Productivity: There w considerable fluctuations in annual yields of different cr

the cropped area of which had undergone major changes. The yield indices in the Seventies ranged between 88 and 121 in the case of rice, 85 and 118 in the case of jowar, 81 and 120 in the case of bajra and 82 and 96 in respect of groundnut crop. On the contrary, the yield indices moved high between 105 and 172 in the case of virginia tobacco; 104 and 160 in the case of chillies and 108 and 231 in respect of cotton crop.

The indices in the Seventies clearly indicate that the yield rates of jowar and bajra crops did not exhibit much improvement. The growth in the yield rates of jowar and bajra was comparatively less than the cotton crop. In the case of groundnut, the yield rates declined. Therefore, it can be concluded that lack of sufficient improvement in the yield rates, which affect the gross returns of the farmers, was one of the reasons for reduction in the cropped area under jowar, bajra and groundnut As the growth in productivity in the case of cotton was highly impressive, a major part of the cropped area under jowar and bajra crops was shifted in favour of cotton. It is to be noted that cotton crop can be cultivated, under rainfed conditions also. This aspect facilitated the farmers who were cultivating jowar and bajra crops to shift towards cotton cultivation.

Despite the fact that the yield rates of rice did not indicate much improvement, the proportion of the area under rice increased in the second half of the Seventies. The reasons are quite obvious. Rice is a staple food crop in Andhra Pradesh and as such more important than jowar, bajra and other food grains. Therefore, a part of the cropped area under jowar and bajra crops was brought under rice cultivation.

The yield rates of virginia tobacco and chillies also exhibited higher growth rates than jowar, bajra and groundnut crops. But, it may be noticed that the growth in productivity of cotton crop was very impressive and comparatively higher than tobacco and chillies. Hence, farmers were encouraged to move towards cotton cultivation. Moreover, the land used for cultivation of tobacco and chillies were also equally suitable for cotton cultivation.

Profitability: Profitability from raising a particular crop not only depends on the productivity, but also on its prices and cost of cultivation. The relative profitability from different crops which could be raised in a particular region influences the cropping pattern of the growers. As such, the massive shift observed in the cropping pattern must be viewed in the context of the relative profitability of different crops to get a comprehensive picture.

A comparison of the relative profitability of various crops needs data on cost of cultivation for each crop for each year. In the absence of data on cost of cultivation, the gross value of output provides an approximate idea about the relative profitability of different crops It is possible then to verify the role played by relative profitability of the crops apart from other factors, in dissuading them to cultivate another.

The gross value of output of a crop per hectare for each year was calculated by multiplying the annual yield per hectare with its corresponding farm (harvest) price in that year. As there were considerable fluctuations in the annual yield and farm (harvest) prices which affect the gross value of the crops in toto, 3 year moving averages of the annual gross values were computed On the basis of such moving averages, indices of the gross values of different crops were calculated in order to observe the trends.

The gross value of output of cotton per hectare increased to more than four-fold by the year 1975-76. Although it declined during the period 1976-77 to 1979-80, it stood at more than three-fold except in 1977-78. From 1980-81 onwards, the gross value increased continuously to more than seven-fold by the year 1983-84. In case of jowar and bajra crops, the increase in gross value of output per hectare was less than two-fold in 12 out of 15 years. It may be recalled that the growth in the yield rates of these two crops was also less than two-fold in many years and comparatively less than cotton. The increase in the gross value of groundnut output was less than two-fold in the Seventies and less than cotton. Further, the yield rates also declined. The increase in the gross values of Virginia tobacco and chillies output during the Seventies was less than three-fold and comparatively less than the increase in respect of cotton.

The foregoing analysis reveals that the gross value of cotton was comparatively higher than many other crops It indicates roughly that profitability from cultivating cotton in the district was comparatively higher than many, other crops. In view of this obvious advantage the farmers gradually shifted to the cultivation of cotton crop

Marketing: Virginia tobacco produced in Guntur region as rainfed crop in the black cotton soil was considered as a suitable variety for blending purposes in cigarette production until the Sixties Hence, there was good demand from international buyers for this variety grown in the District. However, the attraction for this variety grown in black soils started dwindling from the mid-sixties. Preference of the important Western buyers for the Indian virginia tobacco changed to the tobacco having qualities such as grainness, higher filling value and low nicotine and tar contents.

This was in response to the changed preferences of the health-conscious consumers. Virginia tobacco grown in light soils was found to have these qualities.

Marketing of Virginia tobacco cultivated in black soils in the District therefore became a problem for the growers from 1969-70 onwards. They were forced to dispose their produce– regarded as quality produce until the Sixties– at unremunerative

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Sericulture : Bright Prospects

Dr. S. Paul

THE YEAR 1987 was a turning point in the global silk industry. That year, India ranked Number Two in silk production. The World Bank-aided Rs. 555 crore National Sericulture Project (1986-94) triggered off an era of faster development. Silk production is expected to double up to 20,000 tonnes by the end of the Eighth Plan. Table 1 shows the progress made during the Seventh Plan

Thanks to the package of new technology evolved by Indian scientists, we can look forward to the Number One slot presently occcupied by China in the next 15-20 years

Sericulture comprises three distinct activities-cultivation of mulberry/other food plants, rearing of silkworms and reeling of cocoons

Mulberry varieties

Many new high-yielding varieties of mulberry have been evolved for different regions/climates. For South India, K-2 variety yields 32% more leaf over the traditional/ local varieties. Presently, it covers 40% of the total acreage in the South. The latest varieties being released are S-30, S-36, S-41 and S-54, which would yield 20% more than K-2 variety. A sericulturist can produce 30,000 kg leaf per ha, as against the earlier 15,000 kg/ha in irrigated conditions. For the rainfed areas, the newly evolved strains S-13 and S-34 can yield upto 18-20 tonnes leaf/ha. against 5 tonnes of the local varieties.

Mulberry needs deep well-drained soil. Saline and alkaline soil should be treated with gypsum or sulphur and acid one with lime. Green manuring with horse grams or cow-peas and heavy doses of farmyard manure helps improve soil condition.

Over the years, the silk industry has made steady progress. Here, in this piece, the author refers to the factors contributing to this success story. He asserts that the prospects are bright for further progress of the industry which can assure mass employment opportunities.

Planting systems: In rainfed conditions in Karnataka, mulberry bushes are planted in pits with spacing 0.75-0.90 metre between rows and 0.45-0.70 m. between the plants. In irrigated regions, row system is popular, with spacing 0.3-0 6 m on either side of the ridges and 0.10 - 0 25 m between the plants.

Cultivation Practices: Intercultivation or weeding periodically helps in pr growth. Mulching, ie. cov with paddy straw, stubbl autumn leaves helps conserv moisture.

Irrigation: Regions with uni monthly rainfall of 100-150 m not need supplementary irrig

Plant Nutrients: Heavy dos farmyard manure-10-20t pe and larger doses of che fertilisers help optimise leaf y The latter is recommended a kg N, 150 kg each of P&K per h year. Nitrogen applicatio recommended in split doses

Pruning: Being a perennial that would last for 20-25 y mulberry needs pruning at once a year. In Karnataka, b pruning at the height of 10-15 resorted to in June and Nover

Harvesting: Fresher the le higher is their food value. L harvested late in the after contain more carbohydrates less water and hence wither soon. It is better that leaf harv is done in the morning.

Leaf Preservation: It is do temperture below 20° C relative humidity of 90%. He of leaves leads to fermentatio high storage temperature can be avoided by spreadin leaves loose under a wet alkathene covering.

The less productive convent silkworm races have been rep by new ones better suited t tropical conditions. High yie bivoltine races evolved durin last two decades are KA, N NB_7, NB_{18}' CCI and CA_2 Fo rainfed areas, PCN hybrid

Table 1

Seventh Plan	Production (tonnes) Mulberry	Production (tonnes) Total Silk	Exports (Rs. Cr.) Mulberry	Exports (Rs. Cr.) Total Silk
1985-86	7029	7897	148 01	159 82
1986-87	7905	8900	188 39	201 48
1987-88	8455	9498	236 42	254 97
1988-89	9660	10500	319 84	336.75
1989-90	NA	NA	383 41	400.55

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Development in the North-East: Priority Areas

Dr. A.N. Sarkar

The author examines the potential and prospects of the development of agriculture, horticulture and allied activities in the North-Eastern Region. He says, there is vast scope for diversification of traditional agriculture with suitable technological back-up.

IN THE NORTH-East Region, the major crops include rice, maize, wheat, millets, pulses and soyabean In about 27% of the net sown area, crops are grown more than once a year The remaining area is predominantly monocropped particularly in the States other than Tripura and Manipur The potential for multiple cropping in these areas has not been fully exploited This has resulted in food grains deficit.

The major limiting factors in achieving high productivity in the agriculture sector are ecological, technological and socio-economic The region receives very high and well distributed rainfall, which if conserved and utilised properly, can sustain a sound agricultural system almost round the year Combining the major/medium irrigation projects and minor irrigation sources (i e surface and ground water) the ultimate irrigation potential of NE Region is estimated at 30 05 million Ha There is also vast scope for development of horticulturel and diversification of traditional agriculture with suitable scientific and technological backup.

Animal Husbandry

Development of animal husbandry in the North-Eastern Region assumes considerable importance in view of the fact that the agriculture sector is not in a position to cope with the problem of food and nutritional requirements of the people The rural tribal population and other weaker sections in the region traditionally depend on livestock for appreciable part of their livelihood

There is a wide gap between requirement and availability of livestock products and by-products This is because of various constraints like low-yielding production potential of the local breeds of livestock traditional methods of livestock keeping, inadequate health cover facilities for livestock, inadequate availability of good quality feed and fodder and high cost of feed Livestock production can be stepped up in the North Eastern Region by improving the low-yielding local breeds through scientific methods of breeding, adequate health cover to the animals, increasing fodder production, making available necessary quantities of seeds of improved varieties, etc

Higher Productivity

To achieve higher productivity in the agro-horticultural sector the following strategy is to be considered in the VIII Five Year Plan period·

* Augmenting irrigation facilities in the potential areas, suffering particularly from moisture stress conditions during the Rabi season in particular
* Tapping surface and ground water resources by adopting water harvesting techniques and appropriate measures of moisture conservation
* Increasing seed production and timely distribution of adequate and suitable high-yielding and fetiliser responsive crop varieties
* Timely procurement, storage distribution and sale of adequate quantities of different fertilizers needed for cultivation of crops in the Kharif as well as Rabi seasons
* Use of chemical as well as organic fertilizers.
* Model land use for hilly region following the 3-tier system of cultivation namely silvi-pastoral at the top, horticultural/plantation crops in the middle and agriculture and livestock-based farming at the base of the hills

Priority Areas

A Working Group was formed to draw up a perspective plan for the agriculture and allied sector. Among other things, the Working Group Report has suggested guidelines to identify the critical areas of development in the animal husbandry sector to formulate new schemes for inclusion in the VIII Plan. Some of the identified critical areas with great potential for development include· Application of Biotechnology in vaccine production, embryo transfer technology in cattle breeding poultry and fishery development. intensive breeding of endangered animal species. setting up of meat

processing units, feed processing industries and disease investigation laboratories. As per various interaction meetings held with State governments attempts are now under way for formulation of specific project proposals in these potentional areas to meet the regional reguirements of animal products and by-products, feed and fodder and ensuring satisfactory health cover affecting the region as a whole

Cropping Pattern

It has been observed that intercropping is common in the plains whereas mixed cropping is more popular in the hilly region. Agricultural research findings have suggested the following intercropping/mixed cropping pattern for the North East region:

(1) Intercropping of maize and soya-bean or *urad/arhar* (1:1 ratio) is recommended for Meghalaya, Sikkim and Arunachal Pradesh. Intercropping of rice, soyabean or groundnut in two or three rows of rice and one row of soyabean/groundnut (2:1/3:1) or *arhar* (4:1) to be adopted during Kharif season In Rabi, pea/wheat/linseed is recommended after the harvesting of rice/maize/ soyabean.

(ii) The mixed cropping system. practised in the hilly and Jhum farming areas is not uniform. It is a cropping mix (in optimal combination) of cereals, vegetables and other foods.

Mixed farming strategy involving agri-horticultural system together with livestock, poultry, piggery, fishery, mushroom and sericulture ensures overall agricultural development and employment generation by way of providing additional and diverse vocational options and opportunities.

For raising productivity, it is necessary to launch integrated projects on development and demonstration of optimal supply and balanced use of fertilizer and organic manure, improved and high yielding varieties of quality seeds and restoration of soil moisture through minor irrigation system. The Integrated Projects may be taken up for implementation by adopting 10 villages/blocks in each of the 7 States of the region. The basic infrastructural facilities that would be necessary to launch such a project in a minimum time frame should include:

(i) Setting up 7-10 Agro Service Centres to cover the entire project area.

(ii) Setting up of buffer stock of seeds, fertilizers, agro-chemicals, farm implements/ machinery in about 20 representative Centres in 7 States for which appropriate location should be identified at the project preparation/ formation stage in consul tion with the concerned St governments.

Horticultural cultivation can taken up at different elevations the hilly region. Depending agro-economic suitabili horticultural crops are grow selectively in varying altitudes order to get maximum yield. Tl ICAR Research Complex h recommended cultivation various horticultural areas f high hills, mid hills, lower m hills as well as the foot hills ar valleys as per the followir pattern.

The ICAR Research Complex, c the basis of several experiment and demonstration findings, h evolved and standardised certa agro-techniques on scientific lin for agri-horticultural crops eith alone or in combination with oth crops to derive maximum yiel and economic benefits.

Region	Altitude.	Main crops
High Hills	Above 2500 m	Apple, potato
Mid Hills	Above 1500 m to 2500 m	Pear, Peach, plum, walnut, temperate vegetables, orchids.
Lower Mid Hills	Above 500 m to 1500 m.	Orange, pineapple, arecanut, coconut, seasonal vegetables, tube crops, black pepper, chillies etc.

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returns. Majority of the tobacco growers shifted to cotton cultivation. As a matter of fact, black soil in the district account for nearly 85 per cent of the total area and the remaining 15 per cent is of red soil and sundry loams. As such, there was absolutely no chance for the tobacco growers in the District to respond to the changed preferences of foreign buyers.

Conclusions

The foregoing analysis reveals that the massive shift in cropping pattern was due to major considerations such as productivity, marketability, relative profitability and suitability of the soil. Lack of appreciable improvement in yield rates, low profitability in th case of jowar, bajra and groundn crops, comparatively less growth in yield rates profitabili in the case of jowar, bajra ar groundnut crops, comparative lesser growth in yield rates, ar profitability in the case of chilli and virginia tobacco crops act as push factors towards cott cultivation. Marketing problem virginia tobacco was anoth factor. Suitability of the so impressive growth in yield rat and comparatively high profitability played their role gravitational pull factors towar cotton cultivation.

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Indian Pepper in the World Market

Mohd. Tufail Khan

The export record of pepper, the spice king, over the years, is a story of fluctuating fortunes. The author examines in depth the factors leading to the unsatisfactory export performance of this dollar earner and suggests remedial measures to ensure that pepper regains its old glory and pride of place among the top exporting countries.

INDIA HAD THE monopoly in world pepper production as well as trade until the beginning of the nineteenth century. Since then it lost not only the status of a monopolist but also the pride of place as the largest producer and exporter of pepper in the world. It was mainly due to sudden emergence of Brazil and Indonesia as big trading partners. They had the advantages of higher productivity and lower cost of production.

In 1959, India was the largest exporter of pepper accounting for more than 42% of the world exports. It crashed to 25.2% in 1975 and 21 2% in 1985. However, in 1986 the lost glory was regained, exporting 42% of the global exports, thanks to the bumber crop as well as lack of arrivals from major exporting nations But it was short lived.

Exports declined to 31.3% in 1987. The main objective here is to highlight the trend in the export of pepper from India over the years as well as other major exporting countries, total world exports and the share of India in the world exports. An attempt has also been made to examine the handicaps hampering export promotion of the king spice and suggest suitable measures to overcome them.

If we look at Table 1, it is seen that the world exports of pepper rose to 103.8 thousand tonnes in 1987 from 40 6 thousand tonnes in 1959, indicating an overall rise of 156% . It is also observed that world exports had gone to its peak i.e. 123.1 thousand tonnes in 1980 while India's share was the lowest i.e. 22 6% compared to Brazil (26%), Malayasia (24 9%) and Indonesia (24%). The exports of pepper from India went up from 17.2 thousand tonnes to 32.3 thousand tonnes an increase of nearly 88% during the period under study. The Table further indicates that the rate of increase in global exports is much higher than the rate of increase in exports from India. As a result the share of India in total world exports came down by 11.1% i.e. from 42.4% to 31.3% in 1987 over 1959.

Table 2 shows the annual average compound growth rates of world exports and exports from India. It is clear that during 1959-65, world's annual average compound growth rate in pepper export was much higher, compared to India's annual average compound growth rate. In 1965-70 all the exporting countries witnessed a negative growth rate. However, in between 1970 and 1975 the highest annual average compound growth rate of 9.9% was recorded while the corresponding figure in respect of India was 4.3% . During 1975-80 also the world registered higher growth rate as compared to India. The period between 1980-85 was the worst for the world and India as well. An interesting fact is that during 1985-87 India gained much higher compound growth rate compared to the global rate. Another noteworthy feature is that the compound growth rate of India's share in world exports of pepper was all the time negative except during 1985-87.

Exports of pepper from India went up by nearly 88% i.e. from 17.2 thousand tonnes to 32.3 thousand tonnes between 1959 and 1987, whereas the increase in export from Indonesia was 50%

Table 1

Trend in percentage share of India in world exports of pepper during 1959 — 1987

('000 tonnes)

Year	World export of pepper	Exports of pepper from India	% share of India in total
1959	40 6	17.2	42.4
1965	62 7	22.7	36.2
1970	59 5	19 4	32.6
1975	95 3	24.0	25.2
1980	123.1	27.8	22.6
1985	92.0	19.5	21.2
1986	118 5	49.8	42.0
1987	103 8	32.3	31.3

Table -2

Trend in annual average compound growth rates in world exports of pepper and exports of pepper from India between 1959-65 and 1985-87

Year	*Wold Exports Annual Average Compound Growth Rate*	*India's Export Annual Average Compound Growth Rate*	*% Share of India in total Annual Average Compound Growth Rate*
1959-65	7 5	4 7	– 2.6
1965-70	– 1 0	- 3 0	– 2.0
1970-75	9 9	4 3	– 5 0
1975-80	5 2	3 0	– 2 2
1980-85	- 5 6	– 6.8	– 1 3
1985-87	6 2	28 7	21 5

during the period. However, exports from Brazil increased very fast compared to other major producing countries which have been taken for the study. Total exports from Brazil went up to 25.5 thousand tonnes from 2.4 thousand tonnes i.e. by neary 96.3% during the same period

Total exports of pepper from Malaysia declined from 19.2 thousand tonnes to 14 2 thousand tonnes. a fall fo 26% in 1987 over 1965. Exports from Madagascar recorded an overall growth of 80% during the period Though India exported 49.8 thousand tonnes of pepper in 1986, it could not maintain the upward swing.

From the foregoing analysis, it is obvious that the growth rate in export of pepper from India has not been satisfactory during the period under review. Apart from this the share of India in world exports has also been discouraging except in 1986. It is estimated that world demand for pepper may go up to 1.85 lakh tonnes by the end this century India, therefore, will have to increase its export to 75 thousand tonnes by that time if it has to maintain its 40% share in the world market. This can be achieved by increasing the production and productivity through intensive and extensive cultivation methods.

Major Constraints

The most revealing constraint in pepper production in India has been poor productivity which is the lowest, 275 kg/hectare compared to 496 kg. in Indonesia, 1433 kg in Brazil and 2347 kg. in Malaysia. One of the main reasons for low productivity is poor quality of a major part of the existing gardens. Mixed cropping is another factor which reduces the yield rate. Traditional method of cultivation has not given way to improved pattern of cropping. Plant diseases like *will* and pests like *pollu bettles* have compounded the problem.

An important problem in boosting export of pepper is lack of improved methods of quality control and pre-shipment inspection suited to the importing countries. Lack of direct shipping facility to U.S.A. and other major importing countries, meagre laboratory facilities, and comparatively poor packaging and grading system also deserve mention

The Market Intelligence Wing of Spices Board is not equipped with adequate technical manpower for bringing out realistic information/data which could be used in the formulation of policy and planning for the development of spices in general and pepper in particular. There is also lack of required market research and publicity outside India. Wide fluctuations in prices in world market has become another problem Most often, due to cut-throat competition, export prices become uneconomic to producers and exporters. The high prices during the last couple of years have prompted the rival nations to go in for new plantations and the impact will be realised in years to come when world markets will see a massive surge in arrivals from competitor countries. Another important plus point with rival countries is that they have very little domestic consumption If they can increase production, they would make further in-roads into our established markets. Therefore, India has to be very careful and it has to produce one lakh tonnes by 2000 AD considering the projected additional domestic consumption of 25 thousand tonnes

Suggestions

For increasing the output of pepper to match the projected world demand in coming years, suitable measures should be initiated to raise productivity. Apart from taking up creation of new plantations in non-traditional areas, all possible efforts should be made to rejuvenate the existing senile and diseased gardens. Steps should also be taken to increase fresh nurseries. By improving the yield rate the cost of production will also minimised.

The Vice-chairman of Spices Board, Mr. Mariwala, has rightly suggested that quality control schemes should be managed by setting up modern laboratories in major exporting centres, with the help of technical assistance from developed countries. Further, the Board should encourage voluntary quality control schemes, where the standards could be monitored by exporters themselves. Exporters should be given licence to set up their own laboratories and they should be motivated through subsidies. Intensive campaign should be launched for educating the growers, dealers and exporters on the need for more hygienic processing and storage of spices.

The Spices Board has prepared a Five Year Plan to modernise the facilities for cleaning, processing and packaging of pepper and other spices alongwith godown facilities. As part of the West European Market Development scheme, an Indian Spices Informa-

BOOK REVIEW

Overseas Indians

Racial Discrimination Against Overseas Indians: A Class Analysis by Prakash C. Jain, published by Concept Publishing Company, New Delhi, pp. 215, Rs. 155/-.

The book under review "Colonialism, Class and Race Relations : The Case of Overseas Indians" is a comparative sociological analysis of race relations situations of overseas Indian communities in former colonial societies encompassing the time period between the middle of the nineteenth century when Indian immigration and settlement began in Guyana, Malaysia and Kenya, and the early 1980s.

In six chapters of this book, P C. Jain presents a theoretical reinterpretation of the race relations situations of overseas Indians from a class perspective and takes issue with two major theories of race relations i e pluralism and the middleman minority theory. While the pluralists view the problem of race relations of overseas Indians in terms of their political subordination as a minority in different societies, the middleman minority theory explains it in terms of their economic success resulting from certain culturally determined characteristics such as a sojourning orientation, preference for liquidable occupations, and cultural unassimilability. In both approaches, Indians are viewed as "strangers" in their respective host societies.

The Author finds that the race relation situations of the Indians in these countries were contingent upon their economic position and class dynamics specific to each social formation. In summing up his study, Dr. Jain submits that the relationship between class and race is complex. From a class perspective, race relations would appear to be emergent phenomena rather than given relationships Race relations do not exist naturally or essentially by virtue of the existence or phenotypical differences. As Ieo Kuper pointed out.

> "Racial differences have no intrinsic significance. Even when it is present in a society, as an objective fact, it may not be relevant in social relationships; and where it is recognized as relevant, its significance is highly variable, depending entirely on the way in which it is socially elaborated "

S.K. Dhawan

HUMAN RESOURCES: Development and Utilisation: By S. Sabhanayakam. Published by Renaissance Publishing House, C-69 Jitar Nagar, Delhi 110 051. First published: 1988 Pages 406. Price Rs. 350.00

The major thrust of analysis in this doctoral work of the author lies in emphasising planning problems relevant to the unorganised sector's development It has rightly been pointed out that area approach to manpower planning has to be given significance with the major objective of not only rationalising the entire development process but also ensuring distributive justice by equitable distribution of opportunities among the different sections of the society belonging to various castes, classes, regions, etc

With focus on India's manpower resources in general and that of Tamil Nadu in particular, the book deals at length the various facets of theoretical construct which could be helpful in deriving conclusions. With the help of empirical and secondary data, the author brings home the point that the long-run solution to the problem of unemployment would necessitate an active population control policy Though females form nearly half of Tamil Nadu's population, their participation in economically productive work is found to be meagre The overall analysis shows that small-scale, khadi and village industries deserve to be encouraged and aided both by the Central and State governments.

Because of the contraint of real and financial resources, it is maintained, a trade-off between growth and employment will have to be decided in favour of employment. In the context of human resources development in rural India, informal skill development processes like on-the-job training and in-service training programmes would be the best strategy to improve the employment situation. In the future development strategies, the unorganised sector should be allowed to play a vital role. As such, there should be emphasis on manpower planning relevant to this sector.

Spare time works like poultry, dairy farming, piggery, fishing and forestry can help in generating additional employment in rural areas. Schemes for utilisation of human resources should be agro-based in rural areas along with an intensive development of agriculture through increased minor irrigation facilities and measures of soil conservation, better inputs and other facilities.

While the research content of the book is adequate, the conclusions drawn and suggestions made indulge in generalities taking the much-beaten track. □

Navin Chandra Joshi

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bivoltines are released. Among the multivoltines, MY_1 is the most popular variety. Two promising bivoltine hybrids– Sh_6 X KA and SF_{19} X C 122, especially for autumn and spring are to be released. Normally, leaf yield is more in summer.

Rearing Technology

Successful rearing of silkworm depends upon environmental conditions, especially temperature and humidity. Sudden extremes of temperature are injurious, as is the radiation of heat night from the walls which have absorbed heat during day hours in summer. For the rearing house, it is better to have the breadth small compared to its length; anyway never more than 15-18 ft. Windows should be provided for free ventilation. Ideal temperature ranges between 20° and 27° and 70% to 90% relative humidity. Disinfection of the rearing house and all the equipment with 2% formaline solution and keeping the room closed for 15-20 hours safegaurds against diseases. Adequate feeding (4-5 times a day) with tender, finely chopped leaves ensures speedy and uniform growth of the worms.

The new techniques will ensure effective rearing rate of 70-80% resulting in high cocoon production. The sericulturist can get 40-45 kg cocoons in multivoltines and upto 50 kg in bivoltines for every 100 disease-free layings.

Crop Protection

An integrated approach has been taken against major diseases like musacrdine and grasserie. Special spray is used for controlling the uzi fly. Sterilization of uzi fly has been accomplished by using 10% Dimilon mixture during maggot stage.

Intermediate reeling technology has been developed, by fabricating improved reeling machines. For drying and stifling of cocoons, a hot mix stifling chamber has been fabricated, besides developing a smokeless oven which helps save 25% fuel. The cocoons stifled and hot air-dried in this chamber give better reeling performance than those in the conventional steam stifling.

Non-mulberry Sector

Special techniques have been developed for greater productivity in tasar operations. They are:

> Identifying 8 primary and 25 secondary food plants for tasar sericulture, though Arjun and Asan trees have proved to the best host plants for tasar silkworm rearing.
> Proper cultivation techniques for the plants and rearing techniques for the silkworms have been evolved which help boost productivity. Similarly, proper disease control measures have been evolved. Thus, it is now possible to obtain 60-80 cocoons per dfl, instead of the usual 20-25 cocoons. Similar package of technology has also been developed for eri and muga silkworms.

India has virtually reached he take-off stage in silk production. The appropriate technology has been evolved and demonstrated. Prospects are bright for the 'quantum jump which could mean a golden revolution paraticularly benefiting the weaker sections who can earn 55-60% of the total profits.

The author is Chief Executive, India House Developments, New Delhi

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tion Bureau (ISIB) has been opene in London to maintain contact wit the European importers. A vigorou publicity Campaign has also bee planned. These steps may go long way to help secure addition export business.

Tellicheri, one variety of pepper i popular in Italy. It is, therefor suggested that export of this variet should be encouraged. An effo should also be made to introduc *tellichery* variety in other We European markets.

AGMARK authorities have bee levying one-time inspection charg regardless of the number of testin before a lot is finally cleared. O the other hand, the Expo Inspection Agency (EIA) is levyin charges on each inspectio irrespective of whether the lot i passed or not. This sort of practic certainly adds to the cost of export A one-time levy is therefor suggested. □

The auhtor is Researcl Scholar, Department of Commerce A.M.U. Aligar

Yojana: Your forum

Yojana invites topical write-ups on economic and social themes. These may be on the present scene of employment and the potential areas of diversification, consumer protection, communication, transport and such economic issues. Social themes may include women, youth and children, welfare work, works of voluntary agencies, profiles of people and organisations engaged in variuous jobs. Your reactions on articles brought out in the journal or topical issues are welcome. So are your suggestions. Books on planning and economic topics are accepted for review.

Export of Cotton

Government has released minimum export quota of five lakh bales of cotton in the new cotton year starting from September 1, 1990. This is in pursuance of the decision taken by the Cabinet Committee on Export Strategy that every year a minimum of five lakh bales of cotton will be exported on regular basis. This is being done to maintain the minimum support price for cotton growers and to assure regular supply for foreign buyers.

Encouraged by record production of around 130 lakh bales of cotton in the last cotton season (September 89-August 90), the Government has planned to export 20 lakh bales of cotton in the new cotton year, in the hope of earning foreign exchange of Rs. 1000 crore.

During the cotton year 1988-89, 2.10 lakh bales of cotton were exported and in the last year 14.81 lakh bales of cotton were released for export thus earning foreign exchange of Rs. 650 crore for the country.

Out of the five lakh bales of cotton released for exports Government has decided to release quotas for the export of one lakh bales of extra long staple cotton of length 34.5 mm and above, one and a half lakh bales of extra long staple cotton of length between 28 mm and 34 mm, one and a half lakh bales of medium staple cotton of staple length between 24.5 mm and 27.5 mm and one lakh bales of Bengal Deshi/Assam Comilla cotton for export during the 1990-91 cotton season (September 1990 to August, 1991). The Ministry of Textiles has been able to contain cotton prices for F-414 an H-777 varieties between Rs. 570 and Rs. 620 and for H-4 variety of cotton between Rs. 690 and Rs. 750.

Ground Water Resources

A scheme to artificially recharge ground water to check the decreasing groundwater level will be taken up during the Eighth Plan period. The Central Ground Water Board is maintaining a nationwide network of stations for monitoring of ground water levels.

Ground water observation stations were initially established in 1969 for monitoring regional ground water levels. Originally, 410 stations were set up. These were increased by establishing new wells in a phased manner. The total number of stations set up and monitored till March, 1990 was 12,450. This is proposed to be increased to 20,000 by the end of VIII Plan.

Insurance for Fishermen

Under the scheme of accident insurance of fishermen, 33.58 lakh fishermen have been covered and Rs. 1.87 crores was disbursed among 1364 distressed families upto the end of June, 1990. The scheme was formulated by the National Federation of Fishermen's Cooperative Limited and started from December 1982.

Now the premium of the scheme for fishermen per year is Rs. 9. The scheme provides for an insurance cover of Rs. 15000/- in case of accidental death or total disability and Rs. 7500/- in case of partial disability. It provides 24 hour accident cover for all types of accidents.

In addition to this scheme, FISHCOPFED has formulated schemes of Fish Pond and Pond Fish Insurance which provide insurance cover against damage to investments in ponds and fish crops.

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Integrated Child Development

The World Bank will provide about Rs. 200 crore for the multi-state Integrated Child Development Services (ICDS) in Andhra Pradesh and Orissa. It has also approved Rs. 235 crore for another project in Tamil Nadu Known as "Integrated Nutrition Programme". The Government proposed to negotiate similar programmes with the World Bank under ICDS for Bihar and Madhya Pradesh.

Apart from availability of normal facilities under the National Programme for ICDS, this project would provide additional inputs in community mobilisation, women's income generation activities and schemes for adolescent girls.

The programme covered areas like women's integrated learning for life, strengthening of health components and experiment with nutritional rehabilitation centre, experimentation with therapeutic food and enhanced inputs in the spheres of communication, training and project management. It may be recalled that the Tamil Nadu Integrated Nutrition Programme (TINP-I), was taken up for implementation in 1980 with World Bank assistance.

As the TINP-I was nearing completion last year, the State Government proposed further World Bank help for its continuation as the TINP-II and the World Bank had finally agreed to provide Rs. 235 crore. The State Government proposed to cover the entire rural areas of Tamil Nadu under TINP-II, except the blocks covered by ICDS.

This would ensure child survival, health and development and prevention of the incidence of severe, moderate and mild malnutrition and implementation of an effective programme for control and prevention of specific infectious diseases. The TINP-II would be implemented in six years beginning 1990-91.

Literacy Fortnight

On the occasion of International Literacy Day on September 8, 1990 and this year being the International Literacy Year, literacy fortnight was observed throughout the country from September 1 to September 14, 1990.

In Gujarat, the State Government has accorded top priority to the literacy programme. A prize scheme of Rs. 5,000 to Rs. 20,000 on the basis of population has ben declared by the State Government for villages which will achieve hundred per cent literacy. The literacy campaign launched by the Gujarat Vidyapeeth is gathering momentum. It seeks to cover 3.5 million illiterates in the 15-35 age group by this financial year and raise the literacy rate in the State from the present 46 per cent to 70 per cent.

In West Bengal the mass campaign for total literacy in Midnapur is on. 2 million illiterates in the district are proposed to be covered. In Andhra Pradesh mass campaigns for total literacy have been launched in the districts of Cuddapah, Chittoor, Hyderabad and West Godavari. While mass campaigns for total literacy in Kerala, Pondicherry, and Dakshin Kannada and Bijapur districts of Karnataka have made rapid strides, several such plans for total literacy in other parts of the country are on the anvil. It is expected that by the end of next financial year atleast 30 such plans for total literacy would have either been launched or would be nearing completion.

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yojana

NERGY SCENARIO
IBLIC SECTOR
ROGRAMMES FOR WOMEN

November 16-30, 1990 Rs. 3

योजना

Development Diary

Export Of Marine Products

The country earned foreign exchange worth over Rs. 1200 crores from the export of marine products during last two years. The export earnings in 1989-90 were over Rs.620 crores as compared to Rs.585 crores in 1988-89. In terms of quantity, 1.07 lakh tonnes of marine products were exported last year as against 94458 tonnes in 1988-89.

The top five species of marine products exported by India are frozen shrimp, frozen lobster tails, frozen cattlefish/fillets, frozen squids and fresh/frozen fish.

UNDP Project For Haryana

A new tool room for electronics industry is to be set up in Gurgaon, Haryana.The project with an investment of Rs. 6 crores is being set up with UN assistance of 2.1 million dollars. The project , first of its kind in the country, will assist the electronics industry. This will enable it to take up production of precision electronic products like computer keyboards, audio & video tape decks, watch components etc., utilising indigenous materials. The number of industries to be benefited in Gurgaon and Delhi region alone is expected to be about 250.

Immunisation

The Immunisation Technology Mission Programme has succeeded in fulfilling one of the objectives to become self-sufficient in all vaccines except Polio vaccine.

Efforts are being made to achieve self-sufficiency in Polio vaccines within a year, Most of the cold-chain equipment is being indigenously manufactured. The items like Ice-lined Refrigerators, Deep freezers and Chest Refrigerators, imported so far are being progressively substituted by indigenous varieties.

Microwave Communication

To improve the operation of the Railway system, microwave and UHF communication on 440 kilometres has been commissioned during the first six months from January to June 1990. In addition, telephone exchanges with the capacity of 3200 lines including 1500 lines of indigenous electronic exchanges were also commissioned during the same period.

Kapurthala RCF

The Rail Coach Factory (RCF) at Kapurthala (Punjab) has doubled its turnout of new coaches during the last six months from March to August, 1990. Till February, 1990, the RCF manufactured 21 coaches a month. Now it has started manufacturing 42 coaches a month. In the current financial year, 204 coaches have been manufactured so far. It is fully geared to manufacture 500 coaches in 1990-91 against the target of 400 coaches. At the current rate the RCF envisages to produce 750 coaches in the next financial year. The installed capacity of 1000 coaches per year is to be achieved by 1992-93.

It has opened up new avenues for promising entrepreneurs in Punjab who are coming in a big way to participate in coach building process. Sufficient employment opportunities for the people of Punjab and adjoining States are getting generated in the ancilliary industries. RCF is the second coach manufacturing unit under the Ministry of Railways after the Integral Coach Factory, Perambur, Madras.

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To Our Contributors

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Indian Energy Scenario

Ravi C. Moorthy

The author looks at the emerging energy scenario. The outlook, he says, is grim. He suggests alternative sources of energy as way out.

MODERN society is totally energy-based. Any shortage and imbalance will lead to adverse economic consequences. Each successive budget brings home the fact that the upward spiral of energy cost affects every facet of our lives.

The realization that energy resource is a key factor for economic growth and development, and the awareness of the growing problems associated with its supply have raised its importance in national planning. In order to maintain the growth of Indian economy and tackle the menace of increasing cost of liquid fuels and scarcity of biomass, energy conservation is given priority in the national energy strategies.

The conventional sources of energy available to us are in the form of coal, oil, electricity and nuclear energy. It has been estimated that India has coal reserves which might last from fifty to hundred years. Our coal resources are concentrated in Bihar, West Bengal, Madhya Pradesh and Andhra Pradesh. Coal required in other parts of the country has to be hauled over thousand kilometres or more. This implies heavy capital outlay on the transport system.

On the oil front our position is not too sound. We were consuming 32 million tonnes in the year 1979-80 of which only 12 million tonnes were produced indigenously. This will amount to 60% import of our oil requirements. The import bill for petroleum products in 2000 AD is expected to be Rs. 20,000 crores. To increase indigenous production to the projected figure of 56 million tonnes Rs. 450,000 crores would be required for oil exploration and about Rs. 20,000 crores, for oil extraction and refining. By any standard this is a gigantic burden.

Following an intensive search for oil and gas over a large part of the country, natural gas is emerging as the most attractive substitute for oil. India's balance recoverable oil reserves have increased almost eight fold during the past 21 years from 63 billion cubic metres (1st Jan.1966) to about 542 billion cubic metres (1st Jan. 1987). Though there has been sharp increase in natural gas production, significant porti of gas have to be flared due to non-offtake of commi quantity of gas by the consum and lack of adequate compress facilities.

Having this sombre though mind it is with some relief that can turn to the scenario in ele city. India has made substan development in harnessing hy power and ranks seventh in world in terms of potential hy power-it is estimated to between 80 and 100 mill kilowatts (Parikh, Kirit. S., Sec India Studies: Energy, Macmil Press, New Delhi, 1976, p 40). T estimate by the end of the Seve Plan period (1990) is 64, 735 M This estimate has to be cautio looked at when ecological pict is taken into account. Only 18% has been tapped so far, mai becuase of capital cost involvem As such electricity accounts fo more than 20% of the total ene used in our country

Turing to India's efforts towa power generation through nucl energy sources, it is to be no that, at present with its depende on scarce materials such uranium and the possibilities dangerous accidents, this can be considered a viable solutio the energy problem. We also h of 10,000 MW of nuclear power the year 2000 A.D. This is a going to be elusive.

Consumption

To have a perspective demand for energy it is usefu took at energy consumptic sectorally. The four signific energy consuming sectors are Industry (2) Domestic (3) Transp and (4) Agriculture.

Sectorwise, the househ demand for energy is expected increase from the present 18% 22% in 2000 A.D, industrial a transport sector around 39 and per cent and agriculture and alli activities the balance. T second category of fuel availa in India are non-commerc

sources of energy such as firewood, cowdung and vegetable wastes. Although commercial sources of energy have an important place today, it is estimated that 48% of the total energy supplies in India come from non-commercial source, 65% of which comes from firewood only. Further, it is to be noted that nearly all the non-ommercial domestic primary energy production is used by the Domestic sector. In equivalent terms this amounts to 250.08 MTCR.

The picture that emerges is therefore as follows:

The household sector in India is the largest consumer of energy, accounting for about 50% of the total energy consumption. The main cooking fuel in 90% of the total households in the country is non-commercial. And firewood is the most important amongst non-commercial fuel traditionally used, accounting for nearly two-thirds of total energy contribution from non-commercial sources. Next comes Kerosene and LPG.

Household Demand

Domestic units require energy for a variety of needs like cooking, illumination, comfortable living, simplification of tasks, storage, recreation and entertainment and transport.

The end use or the task that requires energy input determines the quantity and form in which energy resource is consumed and the contribution of each form of energy to total consumption.

The most important area that needs energy input in the domestic sector irrespective of all socio-economic variables, is cooking. Studies have shown that consumption of fuel for cooking ranges between 50 and 90 percent of the total. In one specific study, cooking is reported to consume 79.72 per cent of fuels, water heating 17.84 per cent and lighting 3 per cent Cooking as a major energy consuming activity is inelastic at lower levels of income.

The census of energy consumption in the households covered by the 28th round of National Sample survey shows that the share of non-commercial energy is over 80 per cent in rural areas compared to 51 per cent in urban areas. Further, on an average, in rural areas, 89 per cent of non-commerical fuel is collected while in urban areas the figure is 16.4 per cent. This need is met by burning animal waste with low efficiency or by cutting trees and burning wood. Both of these are not desirable.

What To Concentrate On

India's coal and petroleum reserves are depleting very fast and the capital costs of setting up hydel power plants are prohibitive. Further, against the recommended 33 per cent forest cover for purposes of ecological balance the All India average is less than half of that figure. Firewood usage is therefore a subject of much concern. The scenario is further clouded when we turn to the sectoral energy usage.

The household sector is the largest consumer of energy, accounting for about 50% of total energy consumption. The main cooking fuel in 90 per cent of the total households in the country is non-commercial. Firewood is the most important amongst non-commercial fuels traditionally used, accounting for nearly two-thirds of total energy contribution from non-commercial sources.

The two fuels in the household sector which could lead to substantial impact in terms of saving are fuelwood and kerosene. Next would be electricity and LPG. And these two are used to a substantially lesser extent in the domestic sector.

Assuming that the country's population will be one billion (by 2000 A.D.) and that an average of 700 K Cal/day is required per person (for cooking heating and lighting), the total energy requirement for domestic use will turn out to be 25.5 X 10^{11} KCal/year. Against this need, if one looks at the available sources and their calorific values (indicated below), it becomes obvious that fuelwood consumption will be 100 times that of oil or gas.

Fuelwood – 4.5 X 10 KCal/tonne
Coal – 4.6 X 10^{6} KCal/tonne
Methane gas – 1.2 X 10 KCal/tonne (Biogas)
Oil (Kerosene) – 4.4 X 10 Kcal/tonne

Dung cake and agricultural (vegetable) waste is not included as they will eventually be converted to either gas or burnt as substitute for fuelwood since their calorific values are lower. Even if one assumes an equal share among these four sectors (leaving about 20 per cent of the energy needs to be electrical) we get the needs of 10 KCal per year from each of the following.

Fuelwood – 2.5 X 10 tonne
Coal – 2.5 X 10^{7} tonne
Gas – 0.9 X 10^{7} tonne
Oil – 2.5 X 10 tonne

Share of Fuels in Domestic Sector in MTCR Terms (1982-82)

Fuels	MTCR	% Share
Commercial	59 85	19 13 %
Petroleum Products	45 69	14 7
Coal	2.19	0 7
Electricity	11 79	,3 8
Non-commercial	250 08	80 69%
Total	309 93	100%

This is however, an optimistic estimate.

Alternatives

In view of the increasing crunch of shortage of energy resources, due to several reasons like depletion of coal and forest reserves and high price of petroleum products, conservation of conventional energy has assumed great importance. It is envisaged that conservation can be brought about by two parallel and simultaneous approaches.

The first approach is to impose austerity measures. It has been estimated that saving potential exists in the industry, transport and agricultural sectors.

Some studies undertaken to gain insight into urban domestic energy consumption have shown that the households felt increasing cost of commerical fuels a problem but did not visualise it as a serious issue related with its supply. Less effective measures like education on energy situation were suggested to control consumption while measures like rationing, high pricing, etc., were not acceptable.

By and large there was lack of stress on energy issues, energy policies, energy intervention schemes and alternate energy forms and technologies for domestic use. Energy conservation was affected by the household's response towards price increase and attitude towards energy situation.

Energy conservation means efficient use of conventional energy as also its replacement by renewable energy sources or use of more energy efficient devices. This is the second approach. The use of renewable energy sources is one of the effective methods of conservation

Group	Expenditure in crores of Rs.	Annual Conventional Energy Saving In crores of Rs.	In pen of expendi
Fuelwood, Biogas, Biomass energy	2 15	1 10	
Wind energy	2 81	0 39	1
Solar energy	4.46	0 75	1
Integrated rural energy supply	0 83	0 09	1
Total	10 25	2 33	2

The table below shows the amount spent by the Gujarat Energy Development Agency in the 6th Five year Plan period on use of renewable sources of energy and resulting annual conventional energy saving.

The search for alternative sources of energy has gained momentum in India as it has all over the world in recent years in view of the increasing scarcity and expenditure involved in the various conventional energy sources. It is also a fact that fossil-fuel combustion is the prime cause of pollution. In 1972 the cost of air pollution in U.S.A. was estimated at about $ 16 billion per year, including lowering of property values, damage to crops, serious illness and death (Rocks. Lawrence, and Richard P. Runyon, The Energy Crisis, Crown Publishers, Inc., New York, 1972).

A number of other alternative sources of energy are being considered— solar, ocean-thermal, geothermal, gobar gas and wind energy. Collectively these are termed as non-convetional energy sources But the state of many relevant technologies at present is such that the costs far outweigh the benefits and hence marketing of these technologies is difficult.

Heavy Investment

In order to advance these technologies large amount of investments are required with no definite returns attached. Thus these ventures are high investm and high risk ones. In the Europe countries like Holland a Sweden, the respective Governme have made huge initial investme in Research and Development Renewable Energy Technologi Denmark has a substantial resear and commercialisation p gramme which emphasises t participation of the priv sector. The Danish Gover ment funds a variety of R D projects in several renewal energies. In addition, it provic direct capital support to compan producing renewable ener equipment, and also provic subsidies to buyers of cert systems which are not yet fu cost-effective (Energy Policies a Programmes of IEA Countri 1981 Review).

The Government of India h designated a nodal agency, t Gujarat Energy Developme Agency, with the objective realizing the replenishable ener source potential of every state a Union Territory in India. But if o energy scenario and altrnativ are anything to go by, then w shall need much more inves ment and effort in these areas bo in terms of development technology and marketing.

The author belon to the India Institute of Manageme

For Viable Public Sector Enterprises

Mahesh Prasad

THE public sector in India has seen phenomenal growth during the last forty years, providing the country a strong and diversified industrial base. From five enterprises with an investment of Rs. 29 crore at the commencement of the First Five Year Plan in 1951, the country today has 232 enterprises with an aggregate investment of Rs. 85,564 crore. The public enterprises turned the corner in 1980-81 with a net profit of Rs. 445.92 crore and since then there has been no looking back, with profits going up year after year.

During the year 1988-89, the net profit of the public sector enterprises after interest payment and taxes worked out to Rs. 2,980.96 crore. Still, however, a large number of enterprises belonging to eleven product groups, including coal, chemicals and fertilisers, transportration equipment, consumer goods and agro-industries were making net losses. Even in the case of the profit-making enterprises, excepting in the petroleum sector there was vast scope for improvement. To consider these issues recently a conference of chief executives of public enterprises was organised.

Cutting Down Losses

The conference took place at a time when the generation of resources for the Eighth Five Year Plan has assumed vital significance. With the socio-economic policies of the Government and its new priorities, it would hardly be possible for the Government to continue to invest its scarce resources in the development of the public sector. The public enterprises are expected to generate their own resource for growth and at a later stage to contribute to the Central kitty for investment in priority sectors, like agriculture and rural development. A lot of attention was devoted to cutting down the losses of loss-making enterprises and increasing the surpluses of those making profits at the conference. Issues like poor project management, inadequate quality consciousness and high prices of products also assumed significance. Deliberations were made on government control and regulations, which inhibited initiative. The Prime Minister himself referred to the subject and asked the Depatment of Public Enterprises to review the 800 or so guidelines issued to the public sector and to reduce them to 50 if possible and not more than 100 in any case.

During the last two years and a half, the Government has sought to bring about improvements in public sector undertakings by signing Memoranda of Understanding (MOU) with them. The purpose of signing the MOUs is to provide greater autonomy to the public sector enterprises, while at the same time making them more accountable. Till the end of 1989-90, the Government had signed 29 MOUs with public enterprises. Of these enterprises, the net profit of eleven enterprises, which had signed MOUs in 1987-88 had increased from Rs. 1,991 78 crore in 1987-88 to Rs. 2,480.61 crore in 1988-89. A White Paper on the public sector with a view to giving them greater autonomy is in an advanced stage of preparation.

One of the factors leading to the losses in public enterprises is sickness in the enterprises, which do not have the liberty of exit or closure. As a matter of fact, sickness has been promoted as a result of gross over employment in the public sector. Therefore it was recommended to the Government to allow them the facility of exit. A decision on this vital question has rightly been kept pending till a solution is found to the problem of umemployment, which closure is likely to lead to. However it was pointed out that some units have successfully adopted a combination of measures comprising "partial sale, partial closure and partial modernisation" to tackle the problem of sickness.

Raising Equity

It was in the fitness of things that the conference has decided to extend the system of MOUs to 100 enterprises. And Government also heeded to the advice of the Chief executives to cut down the guidelines to public enterprises, which hamper decision making and curb initiative. Most important of them all is the decision to allow profit making enterprises to raise equity from the public. This decision, announced by the Industry Minister, at the Conference has been long pending. Raising equity from the public is the right of any company and there is no reason why profit making public sector companies should have been deprived of this resource mobilisation instrument.

Public enterprises represent agencies through which the Government translates its policies

(Contd. on page 17)

Agro-Climatic Regional Planning— III

CROP planning including crop diversification and productivity improvement strategy has been included in zonal strategies either as part of core strategy or as a supplementary one. On the basis of this as well as perceived national priorities and long term sustainability considerations, pertinent issues and the cropping system plan for a zone/group of zones are briefly presented here

125 M ha under food crops in the country includes marginal and sub-marginal areas. In order to protect the eco-system from further degradation, about 105 M ha can be sustained under foodgrains and will be required to produce about 250 M tonnes by the turn of century This is possible by adopting the following measures:

Bring about 70 M ha of assured rainfall and irrigated areas under double or triple cropping, and increase the present productivity level of about 1.5 t/ha to around 3 t/ha. This increase is possible as amply demonstrated by the results of National Demonstration Project.

—Increase in productivity of cereals in low rainfall areas by farming technologies viz., (i) Adoption of appropriate varieties with moderate level of fertilizer application. (ii) Adoption of appropriate intercropping system specially in kharif upland cereals. and (iii) Introduction of legumes during summer season under irrigated conditions.

The per capita consumption of edible oils will increase with increase in income level of the people as has been witnessed in Five Year Plans. The edible oil production has to increase through:

(i) Adoption of better HYVs with moderate use of inputs, leading to increase in productivity levels. Technology that is available should be transferred to fields without much loss of time.

(ii) Increasing area under irrigated oilseeds from present 15% to much higher levels over the next decade.

(iii) Following effective inter and double cropping systems under oilseeds. These systems have been developed and need to be adopted on large scale.

(iv) Developing short duration varieties of cereals to enable second crop of oilseeds on residual moisture, for example:

(a) By taking 100-110 days varities of jower followed by safflower.

(b) By taking 100-120 days rice varieties under upland conditions followed by groundnut. (This is being adopted in Orissa and coastal A.P.)

(v) By replacing inefficient traditional cereals with more efficient oilseed crops.

As the country is fairly self sufficient in production of cotton and sugar, further expansion areas under these crops need to restricted and productiv increase be considered to meet t additional requirements.

In the Hilly Region, maize ar rice are cultivated in large tracts kharif and wheat, potato ar mustard in rabi. The followi cropping patterns are suggest for different conditions: (See

The Gangetic Plains (Zones 4, and 6) grow cereals like ric wheat and maize to a large exte As ground water source is w developed, rice and wheat a cultivated as irrigated crops. Ca crops like sugarcane are al grown largely with irrigation. these Zones, inter-cropping a relay cropping should be extend on a large scale, thus advocati for more intensive cropping. T suggested cropping patter under different situations are:

The Plateau Region comprisir Zones 7,8,9 and 10 has the bulk its cultivated area as rainted. Th cropping is largely cereal base major cereals being rice, whea maize and jowar. Groundnut an soyabean are the major oilseed Gram, green gram and black gra are major pulses. A large area under rainfed cotton too.

In view of the fact that near 75% of farming in the Plate Regions takes place in rainfe conditions, an approach to rai early maturing crop varieties ar taking advantage of whatev moisture is available is vital. Th cropping pattern for this region suggested below. (See

The East and West Coast Regions (Zones 11 and 12) have coastal plains as well as hill (ghat) areas where varied crop patterns are followed. Moreover, because of high rainfall in coastal hilly regions, cultivation of millets like ragi and kodo is practised, besides rainfed fruit trees. In the plains, rice is the main crop. In some slopy areas, plantation crops dominate. Under such a situation, very limited systems of cropping can be followed: (See D)

In arid and semi-arid Zones, largely dryland farming is followed. The only way to supplement production of crops is to introduce mixed, parallel and sequence cropping systems. Under irrigated conditions two/three crops should be included in a rotation: (See B)

The ICAR has already produced a number of technology bulletins for the most suitable crop varieties and agricultural practices at the Zonal/sub-Zonal level. The above suggestions are not exhaustive or comprehensive but as general guidelines can assist in better utilisation of resources available. Moreover, the suggested strategies and patterns need to be examined further for each local configuration and tested for technical and economic feasibility.

When once such proposals for all the Zones are ready, these will need to be evaluated as a whole, keeping in view the output and input targets for the agricultural sector for the country as a whole set for successive Plan periods. As part of this exercise, it might be necessary to go back to review and recast the strategies and proposals with a view to optimising use of scarce resources and ensuring national level consistency.

Horticulture

As noted earlier, an examination of the soil types and availability of irrigation suggests a shift from low value, low yield cereals to fruit crops. By and large, upland rice

A

UNIRRIGATED CONDITIONS	
Maize-gram	Zone 1 sub-Zone 1,3
Rice-soyabean	
Rice/maize	Zone 2 sub-Zone 1
Maize+soyabean-mustard	
Jute-blackgram	Zone 2 sub-Zone 2,3,4,
Rice-mustard	Zone 2 sub-zone 5
IRRIGATED CONDITIONS	
Rice-Wheat	Zone 1 sub-Zone 1,3
Maize-potato	
Rice-rapeed-potato	
Maize+soyabean-wheat	
Rice/maize-mustard/wheat	Zone 2 sub-Zone 1
Maize-mustard	
Rice-potato-wheat	
Jute-rice	
Jute-Jute-potato	Zone 2 sub-Zone 2,3,4
Rice-rice-mustard	
Rice-potato	Zone 2 sub-Zone 5
Rice-sugarcane	
Autumn rice	
Autumn rice-potato/wheat/mustard	
Jute-wheat	
Winter rice-summer rice	Zone 2 sub-Zone 4
Jute-winter rice-wheat	

B

UNIRRIGATED	
Rice-lentil	Zone 4 sub-Zone 1
Maize+red gram-rabi gram	
Maize+red gram	Zone 5 sub-Zone 1, Zone 6 sub-Zone 1,2
Maize-wheat/oilseed	
Early maize-wheat/gram	
Fallow-vegetables	Zone 4 sub-Zone (Diara area)
Jute-rice-lentil	
Jute-gram	zone 4 sub-Zone 2,3
Rice-wheat/gram/oilseed	
Rice-potato-green gram	Zone 6 sub-Zone 2
Bajra-gram/barley	Zone 5 sub-Zone 3
Bajra+green gram	
Maize-mustard/gram	Zone 6 sub-Zone 1,2,3
IRRIGATED	
Early rice-potato/wheat-green gram	Zone 4 sub-Zone 1,3
Maize-potato-onion	Zone 5 sub-Zone 1,2
Rice-wheat-green gram	Zone 5 sub-Zone 1,2
Early rice-winter maize	Zone 6 sub-Zone 1,2
Rice-sugarcane+potato	
Maize-wheat/rabi maize	
Jute-rice-wheat	Zone 4 sub-Zone 2
Maize-wheat-green gram	
Rice-potato-black gram	
Cowpea-potato-onion-maize + cowpea (forage)	Zone 5 sub-Zone 1

Maize-toria-wheat	
Maize-potato-wheat-cowpea	Zone 5 sub-Zone 3
Groundnut/soyabean-wheat	Zone 6 sub-Zone 2
Cotton-wheat	Zone 6 sub-Zone 3
Irrigated Areas	C
Rice-rice/gram	Zone 7 sub-Zone 1,2,3,4,5,
Rice-wheat/gram	
Rice-groundnut	Zone 8 sub-Zone 1,2,3,4,9,12
Gnut/maize/wheat/gram	
Rice-potato-maize/gnut	Zone 7 Sub-Zone 1,3,4
Maize-wheat	Zone 8 Sub-Zone 10,11,12,13
Maize-potato/wheat	Zone 7 Sub-Zone 4,5
Rice-gram	
Maize-mustard	Zone 8 sub-Zone 7
Soyabean-wheat	Zone 8 sub-Zone 1 13
Bajra-wheat/gram/mustard	
Irrigated Areas	
Bajra-barley	Zone 8 Sub-Zone 11
Unirrigated Areas	
Ragi/maize-gram	Zone 7 sub-Zone 1
Ragi/kodo-sorghum	
Groundnut-gram	Zone 7 sub-Zone 5,Zone 10 sub-Zone 2,6,7
Groundnut-mustard	Zone 7 sub-Zone 2
Rice-wheat/berseem	Zone 7 sub-zone 2 (bunded fields)
Soyabean-safflower	Zone 8 sub-Zone 1,7
Maize/groundnut-barley/mustard	Zone 7 sub-Zone 4,5,
Castor+tur	Zone 7 sub-Zone 4 Zone 9 sz 4
Rice+tur	Zone 7 sub-Zone 4,5
Rice-gram	Zone 8 sub-Zone 3,4,7
Maize-mustard	
Cotton/soyabean/jowar	Zone 9 sub-Zone 2,3,4
+tur/mung	Zone 10 sub-Zone 4
Unirrigated Areas	
Maize/jowar+tur	Zone 8 sub-Zone 9,10
	Zone 9 sub-Zone 3,4
Maize-gram/mustard	Zone 8 sub-Zone 10
Bajra+sesamum/mung/Gnut	Zone 8 sub-
	Zone 8 sub-Zone 11,13,14
	Zone 10 sub-Zone 3
	Zone 9 sub-Zone 2

grown in Zones 4, 7 and 8 can better be substituted with fruit crops. Similarly, Plateau sub-Zones in Zones 9,10, 11 and 12 are ideally suited for orchards. Even much of the arid and semi-arid areas can give better and steady cash flow with fruit trees as compared to subsistence farming with low value cereal crops.

The large areas of wastelands occuring in many zones also offer scope for cultivating arid/semi-arid fruit trees. A major advantage of horticultural crops of fruits and vegetables lies in their employment generation potential.

Examination of zonal strategies suggested by the Zonal Planning Teams have revealed immense potential for horticultural development in Zones 1,2,3,4,5,7,8,10 and 12. The hill area Zones (Nos. 1 and 2) are endowed with varied climate suitable for cultivation of a wide variety of fruits ranging from the tropical to the temperate fruits.

The major constraints horticultural development seen as:

- Inadequate availabi of appropriate genot and quality plant material.
- Comparatively l gestation period, ran from 2 to 5 years.
- Inadequacy of requi finance.
- Lack of viable technol to reduce post-har losses . (estimated about 20%)
- Lack of infrastruct support such as pac ing, forward marketing, storage processing.

● The Hills Region (Zones 1 2) need to adopt a two-fold stra

- rejuvenating unproductive orch by top-grafting, anc
- high density plantations
- Zones 3 and 4 offer g scope to convert plateau sub-zones a mango belt.
- The sub-zone 2 of zo can increase planta of guava, aonla mango on high fl prone areas.
- Plateau sub-zones zones 9,10 and 12 have an increase in under a variety of fr like mango, cit grapes and sapota. coastal sub-zones zones 11 and 12 are i for coconut and ban
- Most wastelands semi-arid areas can h more areas under pomegranate custard apple which withstand extre climate.

In order to boost fruit cultivat some research support shall h to be made available. The m

research thrust should be to:

- Develop genotypes suitable for table purposes, canning, juice and pulp making and pickling in case of mangoes, so that returns mangoes..
- Reduce juvenile phase in crops like mangoes, so that returns are generated sooner.
- Demonstrate high technology on farmers' fields.
- Solve special problems like alternate bearing in mango, bunchy top in banana, melt in guava, spongy tissue in Alphonso mango etc.

Plantation Crops

Tea: The agro-climatic zones with major tea growing areas are Western Himalayan Region (zone 1,) Eastern Himalayan Region (zone 2) Hilly Region of Southern Plateau and Hills Region (Zone 10) Zonal Planning Teams have recommended that non-traditional areas should be tapped and the productivity level of the existing tea gardens be enhanced.

Coffee: Coffee cultivation is mainly confined to zones 10 and 12—the southern States of Karantaka, Kerala and Tamil Nadu. The main strategy is to enhance the productivity of the present area under cultivation and not by area expansion and also to boost export of coffee to the non-member countries.

Rubber: The Zonal Planning Teams have suggested that productivity of the present growing areas – largely in Kerala and some parts of Tamil Nadu, Karnatataka. Tripura and other North-Eastern states should be augmented. Technology back up is forthcoming in rubber. It is suggested that production of rubber can be raised in the States falling in Southern plateau and Hills Region (zone 10), East Coast Plains and Hills Region (zone 11), and Eastern Himalayan Region (zone 2).

Spices: India is a major producer of spices and exports a wide variety of spices and spice-derivatives to a number of countries. The important spices produced in the country are pepper, cardamom, ginger, turmeric, chilli, coriander, cumin, fennel, celery and saffron. Bulk of the pepper production comes from West Coast Plains and Ghats Region (zone 12) and the rest from Southern Plateau and Hills Region (zone 10) and East Coast Plains and Hills Region (zone 11). There is scope for earning more foreign exchange by increasing the production of good quality pepper for export. Pepper cultivation needs to be encouraged and extended in new areas. Cardamom (small) also occupies an important position among the foreign exchange earning commodities. It is largely grown in the West Coast Plains and Ghats Region (zone 12) and Southern Plateau and Hills Region (zone 10). Large cardamom is mainly confined to parts of West Bengal and Sikkim in Eastern Himalayan Region (zone 2). Ginger is produced in most of the States in India. India ranks first among the ginger producing countries accounting for more than 35 per cent of world production. It is largely grown in the West Coast Plains and Ghat (zone 12). India is the largest producer of chillies. It is cultivated commercially in almost all regions of the country. India also occupies the prime position in world production of coriander. Cumin and fennel are largely grown in the Gujarat Plains and Hills Region (zone 13). Saffron is mainly cultivated in the J & K Division which falls in the Western Himalayan Region (zone 1).

There is great need for harnessing the latest techiques in developing better planting material.Well organised research network is also

D	
IRRIGATED AREAS (PLAINS)	
RICE-rice-pulse Rice-rice-rice Rice-tapioca.	Zone 12 sub-Zone 2,3
Rice/tur+Gnut/green gram- Cotton+green gram-wheat-	Zone 11 sub-Zone 1,2,3,4
UNIRRIGATED AREAS	
Rice/tur-cowpea (forage) Groundnut-sorghum (forage) Bajra+ green gram	Zone 12 sub-Zone 2 Zone 11 sub-Zone 5, 6

E	
IRRIGATED AREAS	
Groundnut+tur-wheat	Zone 13 sub-Zone 6,7; Zone 14
Rice-mustard-green gram	Zone 13 sub-Zone 2,3
Bajra-wheat-Cowpea/sorghum	Zone 13 sub-Zone 4,5; Zone 14
Maize-wheat/mustard	Zone 13 sub-Zone 3; Zone 14
UNIRRIGATED AREAS	
Groundnut+guar	Zone 13 sub-Zone 6,7
Bajra+tur/green gram/guar	Zone 13 sub-Zone 4,5; Zone 14
Jowar +black gram	Zone 13 sub-Zone 1,2; Zone 14
Cotton+green gram/cowpea	Zone 13 sub-Zone 5,6

needed with a mandate to release varieties with package of practices having not only high yielding character but also yield quality products in the various Agro-Climatic Zones.

Animal Husbandry

Production of various dairy products which constitute valuable dietary items needs to be raised substantially so that their per capita availability improves significantly. The carrying capacity of land for animals, determining optimum composition of the animal population according to local needs and productive efficiency and ensuring adequate returns to owners, particularly from the weaker sections are relevant considerations in this regard. More concretely, the Zonel Planning Teams have suggested following measures:

a) Enhanced production of regionally suited quality fodder seeds of high yielding, multi-cut varieties in conjunction with region-wise land development/water management strategies and changing cropping patterns and technologies should enable higher fodder production/availability. This will in turn help in optimal exploitation of region-wise genetic potential of livestock sector. ICAR has already produced a Technology Bulletin for Forage Production, which lists the available germplasm and improved cultivation practices for each region. For further work, the Planning Commission has sactioned a Project on Fodder and Pasture Seed Development at the Indian Grassland and Fodder Research Institute, Jhansi to provide the research base for a fodder and seed plan for the VIII plan.

b) Western Dry Region and Gujarat Plains and Hills Region (zones 14 and 13) should concentrate on raising their milk production largely through selective breeding of indigenous breeds like Haryana, Tharparkar, Kankrei, Gir cattle and Murrah, Mehsana, Surti, Jafarabadi buffaloes. Efforts should also be made to raise sheep and wool productivity in these zones because these constitute important assets of certain weaker sections of rural areas.

c) Lower and Middle Gangetic Plains Regions as well as Eastern Plateau and Hills Region (zones 3, 4 and 7) are not endowed with any important indigenous catttle/buffalo breed. Milk production in these areas should be enchanced largely through cross-breeding, keeping in view the climatic adaptability and sufficiency of feed and fodder availability.

d) In Western and Eastern Himalayan Regions (zones 1and 2), cross breeding of cattle on similar lines alongwith buffalo development in appropriate areas should be implemented to raise millk production. Wool production through sheep development, another important livestock enterprise for these hilly regions, should also be undertaken widely. Futher, piggery development (particularly in the Eastern Himalayan Region) should be stepped up in view of the local customs/demand.

e) In Upper and Trans-Gangetic Plains Regions (zones 5 and 6), buffaloes predominate as milch animals. Their improvement through selective breeding should be intensified to increase milk production. Simultaneous emphasis on enhanced feed/fodder availability should no doubt be laid. In view of the better feed availability in these zones, poultry rearing for eggs and broiler production should be further encouraged.

f) In Central and Western Plateau and Hills Regions (zones 8 and 9), animal draught power is still of h[illegible] significance for agricult[illegible] operations and rural tr[illegible]portation. Hence, cr[illegible] breeding of cattle in selecti[illegible] appropriate areas shoul[illegible] taken up. However, in la[illegible] tracts of these zones, gra[illegible] up of non-descript cattle u[illegible] indigenous draught and [illegible] purpose cattle breeds w[illegible] be of equal importance.

g) In West Coast Plains [illegible] Ghats Region (zone 12), c[illegible] breeding of non-descript c[illegible] should be further intensi[illegible] to raise milk producti[illegible] production. These bree[illegible] efforts should of cours[illegible] matched with higher f[illegible] fodder availability [illegible] achieving optimal re[illegible] therefrom. Poultry se[illegible] should also be paid adeq[illegible] attention to incr[illegible] employment potential p[illegible]culary among women fo[illegible]

h) In Southern Plateau [illegible] Hills and East Coast Pl[illegible] and Hills Regions (zone[illegible] and 11), emphasis shoul[illegible] given on buffalo improve[illegible] as well. Cross-breedin[illegible] cattle in suitable poc[illegible] should also be intensi[illegible] Development of sheep br[illegible] for mutton and coarse w[illegible] suited for this geoclim[illegible] area, should be g[illegible] adequate priority to help [illegible] shepherds. Poultry raisin[illegible] the area should prove to [illegible] highly successful endeav[illegible]

i) Dairy developn[illegible] programmes need to [illegible] integrated with Opera[illegible] Flood, particularly in [illegible] Eastern Region.

Fisheries Developmen[illegible]

The position emerging f[illegible] zonal planning experience i[illegible] follows :

Jammu and Kashmir, Hima[illegible] Pradesh and UP hills (zone 1) h[illegible] high potential for developing [illegible] water fisheries. A project on t[illegible] fisheries has been taken up [illegible] the same is to be extended to c[illegible]

more areas with the technology backup in this field.

The North Eastern States including sikkim (zone 2) have good potential for development inland fisheries but the progress so far made has not been adequate. The need for fish seed production by constructing hatcheries has been felt besides taking up riverine fisheries, integrated fish farming etc

The Inland States falling in Middle and Upper Gangetic Plains, Trans-Gangetic Plains and the Plateau Regions (Zones 4, 5, 6, 7, 8, 9 and 10) have good potential for increasing inland fish production and consequent employment generation.

The coastal States of West Bengal, Andhra Pradesh, Kerala and Gujarat (Zones 3, 11, 12 and 13) are important for coastal aquaculture. About 9 lakh ha of brackish water area is available in the country out of which about 55,000 ha only has been utilised so far for prawn culture. Emphasis will, therefore, be on covering more area and also to increase prawn production by adopting high technology for intensive and semi-intensive prawn culture. These zones are also important for marine fish production, particularly in the traditional sector. Maharashtra also has considerable potential for both fish production and brackish water aquaculture.

The seas around the Islands (zone 15) are rich in tuna and shark resources. Attention is therefore being paid to provide infrastructural facilities for exploitation of these resources which would help to increase the export traget from Rs. 700 crores in the Seventh Plan to about Rs. 2000 crores in the VIII Plan.

Introduction of improved hatcheries, distribution systems for feed and seed and processing and storage need particular emphasis. Studies are being conducted on cost effective and efficient systems in other countries including ASEAN countries. These lessons will be used for further policies and planning.

Employment Dimensions

Planning issues related to resource development and management as well as agricultural support system as described above would remain incomplete without taking into account explicitly employment dimensions. More importantly, special thrust needs to be given to agriculturally poor regions as a part of poverty alleviation strategy. Employment generation aspect becomes more crucial in such regional planning exercise.

A quick analysis of the NSS data (1983-84,38th round) on employment structure and intensity for 15 Zones reveals the following:

1. Except in zones 12 and 15, dependency of workers (rural) on agriculture is more than 75 per cent.
2. Among the agriculture sector dominated zones, only zones 4,5,6, and 11 have developed assured irrigation to a significant extent and accordingly show higher land productivity (except zone 4). In rainfed agriculture average employment (gainful) does not, in genernal, exceed 6 months.
3. Percentage of casual labour is large (more than 30%) mostly in rainfed region and also in relatively high irrigated zones like zones 3 and 11. Moreover, incidence of casualisation and unemployment is increasing over time, explained by reduced land holding size with increasing population without concomitant increase in land productivity.
4. Most adversely affected are the zones 7,8 and 9, with predominant rainfed sysfem and high proportion of marginal farmers and agricultural labour. This is also directly reflected in higher incidence of poverty in these zones. Zone 4 is an interesting example of being very poor inspite of good irrigation potential.

In order to study these dimensions in greater detail, a preliminary exercise was carried out for three zones, viz 5,7 and 14. These zones represent three distinct levels of development of agriculture sector, as well as resource endowment: zone 5 representing a higher level of development in terms of cropping intensity and and productivity, zone 14 representing the lowest level of land productivity in the country but highest land holding size (thus to some extent offsetting adverse impact on the employment level of the rural population), and zone 7 representing good resource endowment but a stagnating agriculture. Interestingly it was found that the per capita availability of land i.e. 0.17, 0.32 and 1.38 ha in zones 5, 7 and 14 respectively, is inversely related to the level of agricultural development either measured through yield level of lead crops or overall land productivity (zone 5 with gross value of output per ha more than five times that of zone 14). More work needs to be done under various assumptions of the rate and pattern of growth in agriculture and allied sectors if the required volume and variety of employment is to be generated.

In general it would seem *prima facie* that employment perspective for zones 5and 7is not in a comparative sense that gloomy provided the strategies suggested in terms of increasing cropping intensity, development of groundwater irrigation, and stabilisation of crop production through watershed development/ management can be achieved within the given time frame. This scenario also implies that one-third of the rural employment to be created additionally in these two zones would come from allied agricultural sectors.

For zone 14 it is evident that crop production strategy alone cannot create conditions for achieving full employment. Muchlarger reliance

(Contd. on page 17)

Role Of Education In Combating Population Explosion

Nrusingh Prasad Dash

In this article, the author asserts that population explosion has diluted the socio-economic progress the country has made through the Five Year Plans. The rapid population growth which continues to pose a challenge to the social scientists and planners has been mainly due to poverty and lack of education among the masses. Analysing the various factors, the author says, the vicious circle can be broken only by universalisation of education and overall economic development.

THE most crucial problem facing our nation today is the problem of population explosion. The population of our country was 238 million in 1901 and it grew to 439 million in 1961, i.e. about double in 60 years. But against 342 million in 1947, the population was 658 million in 1981, thus double in 34 years. India is the second most populated country in the world, next to China. The United Nation's projections indicate that the population may increase to 104 crore and 46 lakh by 2005 A.D. and will cross the population of China by the year 2030, if the current growth rate is not checked. The consequence of rapidly growing population is: hampering of development effort this leads to decline in farm production, mass unemployment, growing poverty and poor standard of living. The main objective of our Five Year Plans is to raise the living standards and open out to the people new opportunities for a richer and more varied life. But this has not been achieved on account of population explosion. It has diluted the fruits of the remarkable socio-economic progress that the country has made during the last four decades.

There are three factors which are responsible for population growth in a country: namely, fertility, mortality and migration. In India international migration to or from the country is negligible in proportion to the total population and it may be ignored. The population growth of India is due to its fertility and mortality trends.

There is sharp decline in death rate because of prevention and cure of diseases through modern health care, but there is nc decline in fertility. This is a of fairly high fertility i.e. birt which is 32.7 and mo mortality i.e. death rate 11 the natural growth rate i (SRS-1985). Fertility means bearing of children. The reproc period of woman is generally years, roughly from fifteen y fortyfive years of age. On an a a woman in India gives birth or seven children if her repr tion is not checked. The h fertility in India is attributed level of literacy, low accepta family planning methods, age at marriage and poor sta of living.

The main objective of the is to discuss the factors respo for higher fertility and how can be checked by sprea

education. According to Tagore, "The widest road leading to the solution of our problem is education". Greek philospher Plato gave top priority to education in his ideal state. The aim of education is present and future happiness, adjustment to environment and to achieve socio-economic goal

This paper is based predominantly on the secondary source i e data of the year book 1986-87, Department of Family Welfare, Ministry of Health and Family Welfare sample registration system and Census of India. Along with, the literacy rate of Kerala and Rajasthan State have been taken up for analysis: where the literacy rate is the highest and the lowest respectively.

Literacy And Fertility

The study on fertility has long been of interest to Social Scientists. Let us examine the impact of literacy on fertility

In India Birth rate was 36.9 in 1971 and 33.9 in 1981. So there is decline in birth rate as there is rise in literacy rate from 29.45% to 36.23%. It is also seen that there is variation in birth rate within States according to literacy rate. As Kerala ranks first in literacy the crude birth rate is the lowest i e 23.3. Rajasthan with the lowest literacy has the highest crude death rate, 39.7 (1985).

It is observed from table 2 that educational status has direct impact on reduction of fertility. There is decline in G.F.R., G.M.F.R., T.F.R and T M F.R as there is rise in educational status. The total fertility rate is more than double (3.9) among illiterate women as compared to the women whose education is graduation and above (1.6). The total fertility rate (1984) is lowest (2.4) in Kerala and highest (5 7) in Rajasthan next to Bihar (5 9).

FW Programme

Family Planning is an important variable influencing the reduction of fertility in modern times. India is the first country in the world to include Family Planning in the Five-Year Plan in 1951. It seeks to maintain quality of life of couples with a two-child norm by the use of independent choice of family planning method i.e. sterlisation, Intrauterine contraceptive device, conventional contraceptives and oral pil, The Family Welfare Programme is promoted on voluntary basis to maintain the secular and democratic traditions of the nation. India is a multireligious country with numerous cultural and social customs and beliefs which favour large family size and discourage family welfare methods So the problem of family welfare is essentially the problem of social change. It is therefore necessary to stimulate social

Table 1

percentage of literates to total population.

	1971			1981		
	Person	*Male*	*Female*	*Person*	*Male*	*Female*
India	29 45	39 45	18 70	36 23	46 89	24.82
Kerala	60 42	66 62	54 31	70 42	75 26	65 73
Rajasthan	19 07	28 74	8 46	24 38	36 30	11.42

Table 2

Indicators of fertility rate by educational level of women (1988)

Educational Level	*General fertility rate (GFR)*	*General marital fertility rate (GMFR)*	*Total fertility rate (JFR)*	*Total marital fertility rate (TMFR)*
Illiterate	119	138	3 9	4.4
Literate but below middle	109	144	3 2	4 1
Middle but below matric.	92	150	2.7	3.7
Matric but below graduate	75	137	2.1	3.3
Graduate and above.	77	124	1 6	3.0

change and the change in people's attitudes towards acceptance of family Welfare methods can be brought about only through education.

From Table 3 it is clear that the percentage of couple effectively protected has been increased– from 10.4% in 1970-71 to 34.9% in 1985-86 with the increase of literacy rate. The couple protection rate is very high in Kerala – 38.1% and very low in Rajasthan – 19.8 (as on 31st March, 1985). It is mainly due to the high and low literacy rates respectively.

People believe that child is the gift of God and one should have son for continuation of the family line. So women continue their child birth till the birth of male child. Most of the beliefs are due to the ignorance and lack of education. Mass education will help a lot to remove the blind beliefs and conservative ideas from the mind of the people and they will be able to understand the benefits of a small family. The introduction of population education in schools and colleges will also be of great help. It will teach the young the problems of population explosion, benefits of a small family and planned parenthood.

Age Factor

The fertility rate is greatly influenced by the age at marriage.

Table 4 reveals that when the age at effective marriage is low, TMFR is high and when it is high, the total marital fertility rate is low. So fertility rate is connected directly with the age at marriage.

From table 5 it is observed that among illiterate married women, two thirds of them both in rural and urban areas got married before attaining 18 years of age and only 8% of women got married after 21 years of age. But 16.9% and 10.1% of women got married after 21 years of age. But 16.9% and 10.1% of women got married after 21 years of age in rural and urban areas respectively whose educat graduation and above.

It is seen that the mean marriage has increased a literacy rate increased. It i seen that the mean age at ma for girls is the highest in Kerala and it is the l 16.09 in Rajasthan (1981). indicates that education l direct relationship with a marriage. In our country marriage was in practice was forbidden in 1929. Now th age of marriage is 18 and girls and boys respectively. I of the Act, the custom of *marriage is still prevalent i* society and this can be abol only through universal educ

Development

Economic development an inverse relationship with fe Economic development can down the fertility rate. To the children are extra hands, extra mouths to feed. At th International Conference in Delhi in September 1989, i recommended that develop of the standard of the peo necessary for population co Economic development can the vicious circle of p breeding fertility and fe breeding poverty.

The figures in table 7 hig the decrease in G.M.F.R. T.M.F.R. as there is increase capita monthly expenditure

Growth

The problem of unch population growth is essent problem of social change. S important to stimulate changes such as raising the marriage, increasing the eco standard of the people and vo tary acceptance of family pla methods to bring down the f rate. These changes can be b about through mass educ The foregoing analysis show the fertility rate is lower in li people because they marr higher age, their economic

Table 3

Couples effectively protected in India by methods of Family Planning (OOO)

Year	Eligible couples estimated	Couples effectively protected	Percentage
1970-71	94,489	9,853	10.4
1975-76	105,239	17,843	17.0
1980-81	116,033	26,444	22.8
1985-86	129,432	45,163	34.9

Table 4

Total marital fertility rate by age at effective marriage (1978) : All India

Age at effective marriage (years)	Rural/Urban	Total Marital fertility rate (TMFR)
Below 18	R	5.41
	U	4.61
18-20	R	5.03
	U	4.06
21-23	R	4.67
	U	3.53
24 and above	R	4.12
	U	2.52

Table 5

Percentage distribution of currently married women by age at marriage and by level of education in rural and urban area in India-1984

Educational level	Rural Urban	Age at marriage (Years) Below 18	18-20	21 & above
Illiterate	R	66 3	25 5	8 2
	U	63 5	28 1	8 4
Literate but below primary	R	54 6	33 0	12 4
	U	53 7	34 5	11 8
Primary but below matric	R	49 8	35 5	14 7
	U	47 9	37 4	14 7
Matric but below graduate.	R	32 3	39 7	28 0
	U	26 8	43 0	30.2
Graduate and above.	R	16 9	31 1	52 0
	U	10.1	32 7	57 2

Table 6

Mean age at marriage in India

Year	Male	Female
1961	21 3	15 5
1971	22 4	17 2
1981	23 3	18 2

Table 7

Indicators of fertility by per capita monthly expenditure (1978) All India

Per capita monthly expenditure	Rural Urban	General marital fertility rate (GMFR)	Total marital fertility rate (IMFR)
Below Rs. 50	R	190 8	6 05
	U	183 0	5 72
Rs 51 - 100	R	150 6	4 78
	U	147 2	4 62
Rs 101 and above	R	106 9	3 49
	U	87 9	2 97

is better and also their couple protection rate is high, compared to illiterate people. The National demographic goal is to achieve net reproduction rate of one, with a birth rate of 21 and couple protection rate of 60 per cent by the year 2000 A.D. It is clear from the analysis that the national demographic goal which is meant to control population explosion, can be achieved by raising the educational status of the people. In India the literacy rate is very low, specially the female literacy rate As women bear the brunt of child birth special attention should be given to female education. The year 1990, has been declared as the International Literacy Year so it is expected that special attention will be paid to the education □

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in various fields. Therefore, while evaluating their performance and considering measures for their improvement, the overall socio-economic environment of the country has to be taken into account. There are no easy solutions to the problems facing the public sector Profitability, though extremely important could not be the sole criterion The recent initiatives, including the signing of the MOUs have helped in improving efficiency and providing greater autonomy, while at the same time making the undertakings more accountable. It is expected that the recent measures adopted would lead to further improvements in this direction and increase the profitability and efficiency of the public enterprises. □

(Courtesy : AIR)

(Contd. from page 13)

has to be put on livestock development and agro-processing sector. Equally important would be the critical examination of the projected growth of labour force which is unusually on the higher side explained both by higher fertility level and possible net in-migration. Thus a more radical approach is required for zone 14; for the other two zones, the suggested agricultural development strategy can play the key role in achieving the fully employment scenario.

Local centres integrating with trade and agro-processing and input supply centres related with agricultural development would have to be made a focal point of the strategy. Such centres should have well defined hinterlands which are systematically developed. In resource scarce areas like desert areas, development of nodal points, which have resource advantage, for example, groundwater or energy, would lead to beneficial re-allocation effects in the medium term. This strategy has to be worked out and operationalised in the Eighth Plan by clear cut directives. □

A New Thrust On The Programmes For Women

Usha Singh

WOMEN OF INDIA representing 48.3 per cent of the total population today, are at the cross-roads. A large number of Indian women are slowly emerging out of a system that had oppressed and exploited them for centuries. Today they have pervaded every conceivable sector of the national activity and have left their indelible impressions in various fields which have so far been considered as the exclusive rights of men. But this is only one side of the coin. In our cities and villages, majority of women still suffer from drastic inequalities, despite receiving constant attention of both planners and policy makers. Their life at home and outside still remain extremely ardous monotonous and drudgerous

This means that the developmental efforts definitely have to be given a new thrust, In India it was in the eighties that Women's Development was recognised as one of the development sectors by including a separate chapter 'Socio-economic Development of Women' in the Plan Document of Sixth Five Year Plan (1980-85).

But programmes for the welfare and development of women have been taken up right from the First Five Year Plan. The Central Social Welfare Board, set up in 1953 undertook a number of welfare measures through the voluntary sector. In the Second Five Year Plan, women were organised into Mahila Mandals. The Third and Fourth Plans accorded high priority to women's education Measures to improve maternal and child health services, supplementary feeding for children and nursing and expectant mothers were introduced 'The Fifth Plan supported economic development, and training for women as the principle focus for their socio-economic development. The Sixth Plan taking into consideration, the report of the Committee on the Status of Women, had in its basic strategy a three pronged thrust viz health, education and employment.

In the Seventh Plan, the multi-disciplinary approach evolved during the Sixth Five Year Plan was continued. In addition, efforts were stepped up to inculcate confidence among women and to bring about an awareness of their own potential for development and also their rights and privileges. A significant step in this direction was the identification of the beneficiary-oriented programmes in different development sectors which provide direct benefits to women. There were 27 such beneficiary schemes.

Achievements

In the field of health, programmes of maternal and child health services received high prioity during this period. Primary Health Sub-Centres on the basis of one centre for a population of 5,000 are being set up. Health education was provided through multi-media activities and interpersonal communication by medical and paramedical personnel working in the field. Camps were organised exclusively for women to create health consciousness among them. Mass education and media activities were geared up to promote and create awareness about the age at marriage, child survival, delayed motherhood, etc.

By the end of the Seventh Plan, all the districts are targetted to be covered by immunisation. Expectancy of life for females is expected to exceed that of males for the first time. The sex-ratio which had been declining since 1901 to 1971 has shown a slight increase in 1981. Modern techniques of sex-determination of foetus through 'amniocentesis' has led to disturbingly hig[h] proportion of female foetuse[s] being destroyed in various citie[s] and towns. A Bill for regulation [of] sex determination tests only f[or] medical reasons is in the fin[al] stage of drafting

Education

A number of steps have bee[n] taken for promoting women['s] education. The main strategy f[or] education is a distinct orientatio[n] in favour of women's equality an[d] empowerment. Motivation-centre[d] programmes with special inpu[ts] to promote self-confidence an[d] self-sufficiency among wome[n] have been stressed. School te[xt] books are being reviewed t[o] remove the sex bias. Women['s] Developmental Centres have bee[n] set-up in a number of colleges t[o] bring about social awarene[ss] about women's issues and to focu[s] their efforts on the rural wome[n] particularly those belonging t[o] Scheduled Castes and Schedule[d] Tribes. Special cells are being se[t] up in the State Directorate of Adu[lt] Education and State Resourc[e] Centres to plan and administe[r] women's programme and t[o] encourage their participation i[n] the condensed courses organise[d] by the Central Social Welfar[e] Board. Despite all these pr[o]grammes being in action, yet th[e] rate of female literacy as per 198[1] Census stands at 24.82 per cent a[s] against the male literacy of 45.8 per cent. Similarly, while dropou[t] rate amongst girls at primary leve[l] was 50.3 per cent the same for th[e] boys was 45.8 per cent.

Regional Vocational Trainin[g] Institutes providing trainin[g] facilities in the basic, advance[d] and instructional level skills fo[r]

women have been set up. About 230 ITIs have been set up exclusively for women. As a result of these efforts. employment of women in the organised sector, the public sector and the private sector has gone up substantially. However there was significant rise in the number of women job seekers.

Apart from the other general programmes for upliftment where women are given priority, DWCRA (Development of Women and Children in Rural Areas)– a group-oriented programme- is exclusively meant for rural women and children. Then there is the scheme "Science and Technology for Women" wherein identification and formulation of Science and Technology programmes providing opportunities for gainful employment to women, specially in rural areas, reducing drudgery in their lives improving sanitary and environmental conditions etc. have been taken up.

New Initiatives

The Eighth Plan Approach paper has sought to place emphasis on increased opportunities and improved conditions of 'Employment and Training for Women' be it in areas of self-employment or in the service sectors. Maximum resources would be directed towards releasing the productive and creative energies of rural women so that they become equal partners in the socio-cultural transformation.

In the Plan of Action of the National Front Government announced by the Prime Minister at the beginning of 1990, it was said that a National Commission with statutory powers would be set up to look into cases regarding offences against women as well as serve as a mechanism to facilitate redressal of grievances of women. A Bill in this regard has already been introduced in Parliament in 1990

The Commission

The National Commission may be viewed as the culmination of the demands and aspirations of women's organisations for a body that will safeguard the rights of women. It will also look into the complaints and take *suo moto* notice of the cases involving deprivation of the rights of the women. The Commission shall monitor the proper implementation of all the legislations made to protect the rights of women so as to enable them to achieve equality in all spheres of life and equal participation in the development of the nation. The Commission will have all the powers of a Commission of Inquiry to summon persons and investigate cases of atrocities on women. Officials will be bound to cooperate with the Commission in providing information and documents and those refusing or ignoring to do so will be punished.

The Government gives due recognition to the critical role that Trade Unions and the Mass Media have to play in improving the status and conditions of women and would shortly be initiating measures to harness the scope of these towards this end. A high powered inter-Ministerial Coordination Committee will be set up to review the progress of various programmes and to advise the Government in formulating necessary policies and programmes providing more and more opportunities for employment and training for women in the Eighth Plan. In these efforts women in the informal/unorganised sector will be given due recognition as advocated in 'Shram Shakti'– the Report of the "National Commission on Self-employed Women and Women in the Informal Sector"

There is still a dearth of systematic training and professional approach to women's programmes regarding the awareness, organisation and enhancement of women's skill. What seems to be imperative in the present context is enhancement of women's economic skills and to improve opportunities and providing necessary support structures for them to be free from the drudgery of domestic chores. Combating social evils also is critical for this development. This would serve to bring about a holistic development as advocated in the "National Perspective Plan for Women".

In this effort, the Government is making all out efforts to involve non-governmental organisations, experts and subject specialists, social workers, academic and research organisations, technical institutions, trade unions and above all women themselves so as to ensure optimal participation by all concerned and at all levels. ☐

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Role Of Performance Indicators In Education System

Zeenat S. Shafi

THE National Policy on Education (NPE) 1986 laid stress on vitalizing and strengthening the education system. While adumbrating various strategies for making the system work, NPE stipulated that one of the essential elements of policy strategy would be the creation of a system of performance appraisals of institutions according to standards and norms set at the National or State levels.

In pursuance of this policy statement, it is imperative to evolve various indicators for measuring efficiency and effectiveness of individual institutions as well as educational system so as to ensure efficiency in the delivery of educational output thereby increasing the contribution of the system to the economic and social development of the country.

The need for making such an edeavour arises from the fact that there is general consensus among the educationists and the planners that the use of performance indicators guide in seeking the optimum value for money since they assist in the task of planning and management of resources as well as in formulating appropriate policies for the development of educational system.

Educational Crisis

Ever since the initiation of the process of national planning and development, appreciable progress has been made in respect of expansion and diversification of educational system in the country. The prolonged perpetuation in educational crisis is however yet to be alleviated to the desirable extent. The depressing educational scene is reflected from the system's (i) inability to make deep dent in the area of mass literacy, as is obvious from the fact that more than 60 per cent of Indian population has hardly received the benefits of educational programmes; (ii) non-achievement of the goal of universal primary education, as at least 20 per cent of the children especially of parents who live under abject poverty never enter the school and, if they do so, they drop out before they complete elementary education; (iii) inadequacy of the provisions for ensuring equality of educational opportunities across the region as well as different socio-economic groups; (iv) low stage of development of higher education and research as merely about six per cent of the age specific population especially the childen of high income group have access to tertiary education; and (v) deterioration in quality and relevance of higher education as is revealed from the shortage of specialized manpower amid the mass graduate unemployment

As the investible resources– physical and financial– are always limited whereas the claims for resources by different sectors of development are duly high, it becomes an valid question from the point of policy planning as to why a decision maker sho[illegible] seek the value for money, w[illegible] possible if a sense of accoun[illegible] is awakened among a[illegible] functionaries like stu[illegible] teachers, institutions et[illegible] education system. This alo[illegible] improve the performan[illegible] educational institutions, t[illegible] raising their contributio[illegible] national development.

The evaluation of perfor[illegible] has generally not been an e[illegible] shed tradition and practice [illegible] most institutions of [illegible] education in India, beca[illegible] many organisations the[illegible] general fear of subs[illegible] resistance and insurmou[illegible] resentment from the uni[illegible] community which emanat[illegible] the lack of consensus c[illegible] concepts of measur[illegible] especially qualitative asp[illegible] education and the ju[illegible] application of perfor[illegible] indicators howsoever e[illegible] Nevertheless, in order to [illegible] effective implementatio[illegible] policies and programmes per[illegible] to qualitative improveme[illegible] quantitative expansion of edu[illegible] the measurement of perfor[illegible] is the *sine-quo-non* for ju[illegible] the need for either [illegible] additional investments or [illegible] resources or utilizing them[illegible] ently. Even though the que[illegible] assessing performance is [illegible] with difficulties arising [illegible] conceptual and sta[illegible] limitations, this does[illegible] absolve an educational p[illegible]

from the responsibility of developing and using reliable and consistent performance indicators for measuring the extent of achievement of the most cherished goals of educational institution. It is in this context that the programme of Action (1986) has stipulated that:

> "Certain norms of performance must be laid down for observance by the administration (Government as well as managements of educational institutions), teachers, students and educational institutions. It should be made clear that these norms are non-negotiable, and not conditional on fulfilment by any other category of organisation or individual of their obligations".

Concepts

The performance indicators are very closely associated with the concepts such as productivity, efficiency and return on investment as are applied in economics. Like these concepts, performance indicators may be defined as quantifiable variables which may be used as tools for decision making, both inside and outside institutions, especially in regard to achieving the best possible use of the resources invested in higher education. In other words, performance indicators are in essence the statements usually quantifiable on resources employed and achievements secured in areas relevant to the particular objective of the institution/organisations. Universities are usually engaged in a variety of activities and pursue a number of objectives.

In order to ascertain the relevance of those objectives especially those relating to quantitative and qualitative developments, performance indicators are required against which the cherished goals can be evaluated, trends in performance can be identified, signals can be given of areas where action is required and finally the comparision of actual performance with objectives can be made possible. However, it is also true that the performance indicators do not themselves provide solutions to planning problems. They represent a spectrum of measures integrated into a coherent set of management data, to serve as a basis for measuring and assessing the nature of areas of the university's activities as an indicator of the effectiveness or efficiency of activities. Such information combined with sound judgement assist a great deal in the planning and disposition of the university's human, physical and financial resources. Specifically, the following advantages are clearly discernible.

The effective utilization of efficiency norms or performance indicators could (i) improve the efficiency in the use of funds as the power to divert certain funds from one head of expenditure to another could be detected and the utilization of scarce money could be made; (ii) improve the efficiency in the academic field, as the work of teachers in the area of research and innovation, and attention to teaching and other activities could be taken care of, and (iii) improve the efficiency of the institutions in terms of increase in the number of days of instruction in a year, regularity in conduct of examinations, declaration of results, and academic seesions, quantity and quality of research etc.

At the outset, it may be mentioned that there are a number of conceptual, statistical and methodological problems involved in developing meaningful performance indicators. Some of the significant aspects which ought to be borne in mind while evolving the indicators are as follows: Firstly, a great deal of caution need to be exercised in respect of (i) the relevance of performance indicators to the objectives of the institution/university; (ii) the extent to which the chosen indicators are quantifiable and (iii) the nature and type of guidance which is proposed to be sought by way of making effective use of indicators. Secondly, the selected indicators should be verifiable which imply that qualified individuals working independently of one another are able to develop essentially similar measures from examination of data. Thirdly, the indicators should be free i.e. the indicators should be developed without any statistical, personal or other bias. Fourthly, the economic feasibility should be taken care of so that the benefits derived from the use of the indicators outweigh its cost of development. Finally, institutional acceptability ought to be taken into consideration. All those who are involved either in implementation of performance indicators or covered under appraisal programmes must have faith in the approach of evolving indicators and accept that the basis on which they are derived is relevant and objective. Obviously, all these considerations render the task of developing performance indicators a very difficult one.

Sound Performance Indicators

The following are the characteristics of sound performance indicators:

> They must relate to the stated objectives of the organisation, which in the case of universities, are largely teaching and reserach. They must be specific, quantifiable and standardised so that information can be used for making valid comparisons within and between institutions. They must be as simple as possible consistent with their purposes. They must be acceptable and credible in the sense of being free of systematic bias. They must be useful and capable of acting as signposts to areas where questions concerning operations can and should be asked.

Limitations

The indicators should essentially be used to provide

an aid to sound judgement and not a substitute for it. Because the numbers alone do not reveal vital information and, therefore, an appropriate interpretation is always necessary and in any type of interpretation there is the possibility of one being biased. The performance indicators, more-performance indicators, moreover, should never be used to impose standardisation either within one individual institution. or more widely. because, the diversity of the higher education system is one of its strengths. An attempt to use performance indicators to impose uniformity is likely to destroy its excellence. Therefore, the indicators providing quantitative measurements as averages and norms should not be considered as standards to be achieved. A great deal of caution should, therefore, be exercised in defining and interpreting performance indicators since "sharp tools can be dangerous in untrained hands." They should be evaluative not prescriptive. They should rather assist and expedite the decision making process.

Areas Of Application

The performance indicators could be developed to encompass the inputs, process and output variables so that they could be used both within individual institutions as well as between institutions for making relevant comparisons. Indicators should not only assist the universities in the internal management of their affairs but also help the regional and national bodies in monitoring university's performance.

Keeping in view the objectives of the universities, the indicators could be divided into two broad categories: (i) General Indicators of education system and (ii) Specific Indicators of education system.

General Indicators are the broad indicators for the educational system as a whole. The General indicators are Input Indicators, Process Indicators and Output Indicators.

The Specific Indicators of education system refer to the indicators which are directly related to a particular stage and level of education like Primary, Secondary or Tertiary education. The Specific Performance Indicators assist in evaluation of performance in each particular field of study like Sciences, Humanities, Arts etc.

These indicators are very general in nature and, therefore, their scope and coverage is very limited. From the point of view of the qualitative improvement and quantitative expansion of higher education, it is required that the performance indicators should be developed in a planned and systematic manner so as to cover all the aspects of higher education. Keeping this in view, the following three major aspects should necessarily be covered:

- Planning
- Allocation of Resources and
- Course Management

Under Planning, four categories could be identified, i.e. student planning, curriculum planning, staff planning and financial planning.

In resource allocation, the indicators should relate to the provision of grants.

Course management is concerned mainly with the introduction, modification and withdrawal of courses. The indicators under this heading may be either external or internal.

In view of the prevailing educational deficiencies, there is an urgent need to vitalise and strengthen the education system in general and higher education in particular. In spite of the serious resource constraints which are associated with the low stage of economic development of country, the investment higher education system enabled it to expand and dive so much so that it has emerge be the third largest system in world. While the developme higher education is crucial survival, its uneven and inequi characteristics are obvio inconsistent with the nati policy of equalizing social economic opportunities. The that about 80 per cent of beneficiaries of higher educa belong to the top 30 per cent o income group and that educa in India is largely financed Government which collects r than 80 per cent of its reve through indirect taxes, incidence of which falls on sections of society, prove higher education in Indi not properly oriented tow democratisation of educa Moreover, the general conse about low quality and lac relevance of higher education research has generated gen concern for improving the sys so that its contribution to nati development could be enhanced. The policy appr regarding resource allocation future, is also seemingly ur biguous as a relatively more we age is expected to be attache universalization of elemen education, adult education vocational education. Hi education would have to com for funds-both within the educa sector and with other s economic sectors. On the pre reckoning, it seems that chances of atracting funds w depend largely upon the exte which higher education syste able to improve its accountab to society.

In this context, NPE emphasised the need for ma the system work and indic that as a part of the strateg improve the performance educational institutions, efficiency norms should be down to monitor and evaluate programmes of education within an institution and ac

the institutions. While almost every university level institution in advanced countries is making use of performance indicators for improving internal as well as external efficiency, there is hardly any evidence to demonstrate convincingly that the universities in India or their funding bodies like the Departments of Education or the Central and State Governments and UGC are using performance indicators for planning and management of resources. In view of the vital role of the indicators as an aid to policy planning, the nodal agencies at the Central and State levels ought to make objective selection of indicators, define and apply them judiciously.

The prevailing system and structure of higher education allow for simultaneous existance of the best as well as the worst performing institutions for reasons attributable to the deficiency in the mechanism of allocation of reasources to educational institutions, including universities. The efficiency in the use of resources and improvement in overall performance especially of tertiary level institutions could be brought about by way of both increasing competition for attracting students and funds as well as laying down the level of expected performance, of course to the average extent, in respect of the quality and quantity of teaching and research. By implication it would require that instead of funding the university level institution on the deficit or incremental basis as the current practice is, the resources to them should be allocated on the basis of performance as judged from different efficiency norms of teaching research and effective utilization and management of physical and financial resources. In this context the use of performance indicators could go a long way in realizing the objective of making the system work □

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Alternative To Shifting Cultivation

N.P. Singh and Pramod Kumar

SHIFTING cultivation, locally known as jhuming is a widely practised farming system in hills of North East India. This type of farming system known also as podu cultivation, fire farming, or slash and burn agriculture is practised in parts of Orissa, Bihar Madhya Pradesh and Andhra Pradesh in India and in Amazon basin, Korea, the Philippines and South West China. This farming system is believed to have originated in the Neolithic period around 7000 B.C. In North Eastern Hills Region, about 4,92,000 families are involved in shifting cultivation affecting an area of about 26,94,000 hectares. Essential features of shifting cultivation are: selection of site on hill slopes, clearing of jungles (cutting and burning), using the site for 2-3 years for food production by way of planting crops (maize, rice, millets, beans, cassava, yam sweet potatio, ginger, cotton, chillies, tobacco, sesamum and vegetables) in mixture and thereafter moving to a fresh site for repeating the process.

The practice of shifting cultivation was good for the time when it emerged. But with the increase in the size of families and socio economic needs, it has become a problem now. The cycle of shifting cultivation has come down from 20 to 30 years to 3 to 5 years. Jhuming is responsible for large scale soil erosion, siltation of reservoir, causing floods in the plains, loss of soil fertility resulting in low production, drying up of the natural stream etc. It also affects the flora and fauna to a great extent. Therefore, the system has inherent damaging character of degradation of natural resources and requires special attention in finding suitable alternatives for this age-old system.

Watershed, a natural drainage unit, can form the base of various land uses with an objective of optimizing the use of resources for sustained production within permissible limits of degradation of the production base (land and water). For steep hill slopes the following considerations may form the base while planning for land use system:–

(i) Use of local resources
(ii) Maximum retention of rainfall within the area without affecting the crop
(iii) Storage of run-off water.

Limitations

The soil conservation measures are meant for mechanical soil and water conservation measures for controlling soil erosion and retaining maximum rainfall within the slopes and safely disposing off the excess run off from the slopes. The various measures could be contour bunds, bench terrace, half moon terrace, grassed water ways, water harvesting ponds etc. Agriculture, horticulture, livestock, forestry and combination of these systems are some of the alternatives. However, all these measures and alternatives have their own limitations and have met with little success.

The industries which are based on agriculture-produce and industries which support agriculture come under agro-based industries. The agro-based industries may be classified into four types:

i) Agro-produce processing Units: These industrial units simply process the agricultural produce. They do not manufacture any new product.

(ii) Agro-producing manufacturing units: These units manufacture entirely new products based on agricultural produce as the main raw material. The finished goods will be entirely different when compared to its original raw material, e.g. sugar factories, bakery etc.

(iii) Agro-inputs manufacturing units: The industrial units which produce goods either for mechanisation of agriculture or for increasing productivity come under this type.

(iv) Agro-service centres: Agro-service centres are workshops and service centres which are engaged in repairing and servicing of agricultural equipments.

The different agro-based industries that can be effectively developed in the North Eastern Region with an eye on curbing the shifting cultivation are discussed below:

Essential Plants

For its peculiar agro-climatic conditions, North Eastern Region has gained considerable importance in planting a large number medicinal and economic plants for the production of medicines, essential oils and other cosmetic items.

Some forests in Assam, Manipur, Meghalaya and Nagaland in the North Eastern India constitute the only region in the country where agar-bearing trees are available. Althogh poor in quality, some inner fungus infected parts of the mature agar tree contain an essential oil which is one of the most precious oils in the world and is much priyed bv the European perfumes for mixing with their best grade scents. It is reported that the infected agarwood itself fetches a prize of Rs. 20 thousand to Rs. 40 thousand a kg and the oil sells at anything between Rs. 2 lakhs and Rs. 4 lakhs a litre. The agar attar is in great demand in Wst Asia where, it is used for a variety of purposes, as scents and perfumes, as a stimulant, as a tonic, as a carminative and as an aphrodisiac. As such, agarwood oil industry happens to be the oldest and the most lucrative essential oil industry in the North East.

Since the oil is contained only in the inner infected parts of the tree which are not visible from outside and since no scientific method has yet been developed to detect the oil bearing tree, indiscriminate felling in search of infected tree has made the availability of this precious species scarce and brought down the yield of agarwood drastically.

Turpentine oil based industries: In terms of volume of production, turpentine oil tops the list among all the essential oils in the world. Despite great potential and huge demand, the indigenous production of this oil is gradually dwindling. Although several species of pine trees, rich in oleeoresin containing turpentine oil and resin are growth in different temperate zones in the country. The chir pine (*Pinus insularis*) which grows fairly fast and occurs abundantly in the forests of Meghalaya, Manipur, Arunachal Pradesh, Nagaland and Mizoram in the North East is still awaiting requisite attention for production of resin and turpentine oil, which are so essential in a number of industries, such as paper, soaps and detergents, paints and varnishes, cosmetics, rubber and pharmaceutical industries.

Experimental investigations have proved that the turpentine oil from khasi pine is superior to that from chir pine. It contains more pinene required for the manufacture of synthetic camphar; and oleoresin from khasi pine contains as much as 65.70% of resin, which is in large demand in the NE region itself.

Cinnamon leaf oil: In terms of eugenol content, cinnamon leaf oil equals clove oil. Our country wastes a lot of foreign exchange on the import of this oil. Cinnamon leaf is extensively used in the country in flower and confectionary industries and partly in medicine. Eugenol isolated from cinnamon leaf oil is an essential material for the manufacture of valuable perfumery chemicals like vanillin, iso-eugenol and eugenol acetate. Several hill areas in the North East particularly Meghalaya grow *Cinnamomun tamula* (Tejpatta). It produces the oil which is very rich in eugenol content (75-80%) but no cinnamon leaf industry is existing in the region presently, So effort should be made to set up a few units of extraction of cinnamon leaf oil. Presently traders purchase the leaves at nominal price and make good profit by selling them to distillers outside the region.

Citronella oil: In the late sixties the Regional Research Laboratory, Jorhat started pioneering investigations towards propagation of medicinal and aromatic plants in the region. *Java Citronella* was the species which proved to be highly suitable for the agro-climatic conditions prevalent in the region and its cultivation and commercial exploitation was introduced successfully in several areas. From a mere 95 hectares of land under *Citronella* cultivation in 1970, today as much as 6000 hectares are under the cover of *Citronella* in the North East which has given rise to the growth of a chain of small scale distillation units resulting in total stoppage of import of *Citronella* oil in the country and saving valuable foreign exchange.

Lemon grass: It has been reported that among all the essential oil produced and exported from India, lemon grass used to rank second in value until recently. But, it has started declining in recent years. But in the North Eastern Region there is wide scope and interest among the people for lemon grass.

In the temparate hill areas of the North East, lemon grass grows wild. Until very recently, no attention had been paid towards the organised cultivation of lemon grass in this region and its exploitation. The RRL, Jorhat has recently stated some extension work for cultivation of lemon grass and production of oil from it. The initiative taken by RRL has induced some villagers at Lumla (Arunachal Pradesh) where the grass grows wild to start commercial exploitation.

If properly exploited in the North Eastern region, lemon grass will not only help in earning valuable foreign exchange, it can also give rise to the growth of a number of other allied chemical industries based on lemon grass, such as solution of citral and its conversion to vitamin A and also to citronellal, citronoll, garaniol, linalol etc. On this a number of cosmetics and perfume industries can come up. None of these industries exist at the moment in the region.

Ginger oil: In North East India, ginger cultivation is practised since time immemorial. On the dry weight basis, this region produces about 28% of the total production of ginger in the country. But, little or no attention has been given so far to produce ginger oil which has ample demand in food and flavour and also in preparation of some soft drinks. At the instance of Mizoram Industrial Development Corporation, a ginger processing plant has been commissioned at Sairang, about 30 Km from Aizwal; Mizoram accounts for 16% of the total production of ginger in the country. The project as presently

envisaged proposes to process annually about 1100 tonnes of fresh ginger yielding 200 tonnes of ginger, 1 tonne of ginger oil and 6 tonnes of ginger oleoresin. The plant is said to be second only to first such national venture in Kerela.

Other essential oils Among other essential oils, Palmarosa oil, which is one of the high grade geranfol and which is one of the few highly acclaimed export items, has caught attention recently and is progressing rapidly. At the instance of CSIR–polytechnology gentre at Shillong, three firms in the region have taken the technology for commerical utilization of *Mentha citrata*, a mint species rich in linalod and linalyl acetate which are two high value essential oils presently imported in the country.

Horticultural Crops

The horticulturists in the region go on to the extent of claiming that the horticulture is the only perfect answer to the problems of shifting cultivation. But, almost all the horticultural crops are either perishable in nature or need some processing before consumption. For this purpose alone, there is a need for the establishment of horticultural crops based industries. This becomes more so in face of scanty transport facilities in the North Eastern Region.

Spices:

Spices are an important group of crops that could be properly explored in the North Eastern Region. The agro-climatic conditions of NER particularly favours the growth of ginger, turmeric, black pepper, large cardamom and cinnamon. Southern states presently contribute most of the black pepper and turmeric exported from the country. Both of these crops grow extremely well in this region. It is intresting to note that the cucumin content of turmeric variety grown in Jowai district of Meghalaya is higher by one per cent than that of the varieties grown in the south. The turmeric crop has got many industrial uses, especially in the cosmetics industries. Meghalaya occupies the second largest place in terms of ginger production. Similarly, the north eastern region will be the primary source of cinnamon also. Here, it is worth mentioning that except cardamom, almost all the species need processing before human consumption. This strengthens their case.

Fruits And Vegetables

The most common and widely cultivated fruits in the region are mandarin, pineapple and banana while some area is also covered under fruits like apple, pear, stone fruits, coconut, papaya, litchi, lemon, mango, guava and jackfruit.

The annual production of fruits is progressively declining. One of the reasons given is the lack of marketing facilities. If preservation industries, such as orange squash industry, come up near the producing orchards, it will lessen the burden of quick disposal and at the same time fetch a high price.

Pineapple covers the second largest area in this region and the climate of the region favours its tremendous growth The pineapple juice extraction units and other allied preservation activities will give a fillip to pineapple cultivation. At present, pineapple is consumed within the region. Recently, the Nagaland Government invited some experts in food preservation from Czechoslovakia and they decided to have joint-venture in the field of pineapple preservation.

Among the temperate fruits, apple has shown great potential in Arunachal Pradesh. But, difficulties in transportation remains a great bottleneck and this problem could be solved to some extent by opening up preservation industries.

Forest-based Units

The forest wealth of this region extends over all the states and vast resources of bamboo, reeds, grasses, as well as coniferous and suitable broad leaved species are available. If these resou properly utilized, not country's requirements rayon and newsprint ca substantially, but also a n industries like Plywood box, saw mills and furniture can be establisl

In view of large availab kernels in some parts and Meghalaya, efforts made to produce sal fat cake can be used for pro cattle feed.

Agro-wastes

Coming to agro-waste u it may be mentioned that million Kg of tea waste is annually from the indu half of that comes fron Coffeine, an essential pharmaceutical prepar extracted economicall tea waste. Coffeine can f converted to several other i drugs like theophylline, ar line, dramamine etc.

Of 150,000 tonnes of produced in the country, per cent comes from As Meghalaya, Guwahati U and Forest Research Dehradun are exploi possibilities of making hi hard boards from arecan

Enormous quantities husk can be effectively u brick and cement. A such as jute sticks an straw can be used for paper boards. The tion of ethanol from agr should be given serious c tion. Prospects of prod enzymes such as brome pineapple waste and pap papaya can also be e Weeds like water hyaci been successfully util production of biomass as of energy as well as for paper boards.

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Tourist Market Of Kerala

Dr. K.V. Joseph

THE FAST GROWING tourist traffic has brought into prominence many of the relatively unknown regions as important tourist destinations. Kerala has been trying to carve out a place in the tourist map of India by introducing various measures in recent years. The purpose of this paper is to evaluafe the potentiality of the tourist market of Kerala and to suggest measures for the expansion of the same.

Nature has created land in such a way that no two places are like each other. Certain localities possess superior natural endowments. over others. Such places attract tourists and they emerge as strong tourist destinations. Scottish Highlands, English Lake District, Norwegian Fjords, Iceland and Interlaken in Switzerland are only a few regions where a flourishing tourist trade has grown around scenic attractions.

Scenic Beauty

Kerala can be stated to be a land endowed with natural endowments on par with any other tourist destination in the world. The most important among them is the scenic beauty. Being a narrow stretch of land sandwiched between the Arabian sea and the Western Ghats, in the south western cornor of the Indian Sub-continent, Kerala has a long coastline of about 570 kms and an equally lengthy mountain range. The coastal areas of Kerala, dotted with a number of lagoons and backwaters in the midst of paddy fields and coconut groves are a star attraction to the tourist. The mountain region where wild animals like elephant, tiger, boar and bison cohabit in the midst of steep mountains and narrow valleys of thick forest growth forms an equally attractive region.

The narrow midland region intermittent with coconut palms, paddy fields, rubber plantations and pepper- vines is also noted for its scenic beauty. Kerala is indeed a unique land where the beautiful coastline and attractive mountain range are located in close proximity to each other. The moderate climate devoid of extreme cold and very hot summer seasons makes it an agreeable region throughout the year.

The existence of a number of resorts, each one with special attractions of its own adds lustre to the overall scenic beauty of the State. Among them, beach resorts are perhaps the most important. Among the beach resorts of kerala, kovalam, located close to Trivandrum deserves special mention. Some sort of an enclave carved out in the sea by the projection of an elevated cliff adds splendour to the attraction of Kovalam. One can enjoy swimming and sea-bathing inside the protected enclave practically throughout the year. The elevated cliff provides a panoramic view of the beautiful locality surrounded by coconut groves and granite hillocks, Varkala, located about 30 kilometres north of Trivandrum, whose main attraction stems from a spring of mineral water with healing power gushing out from a cliff, is another important beach resort of Kerala. Kappad near Kozhikode where Vascodagama landed in 1498. Muppilangadi, a small island near Cannanore which was the seat of the Ali Raja of Cannanore in the 18th century and Thirumullavaram near Quilon are some of the other beach resorts of Kerala.

Association of tourism with water though not always seawater is well-known. The spas of the 18th and 19th Centuries are the forerunners of modern tourist resorts The backwaters of Kerala, known as *Kayals* in Malayalam and surrounded on all sides by coconut groves are famous for their scenic attractions. Among them Vembanad lake is the foremost. Cochin harbour, located at the opening of the lake to the Arabian sea is an attractive tourist resort by itself. A number of small islands at the mouth of the lake like the Willingdon island, Bolghatty island etc. add grandeur to the attraction of Vembanad lake. Pathiramanal, an island of about 100 acres in size in the middle of the lake forms another beautiful spot full of tourist potentialities. Ashtamudikayal near Quilon and other backwaters can also serve as havens for tourists. Another lake–an artificial one at Thekkady, located at an altitude of more than 1000 metres above the sea level in the High Range region of the State forms another tourist resort of a different category. Existence of a wild life sanctuary in the thick forest area that surrounds the lake enhances the attraction of Thekkady. Sri Padmanabha Swamy temple at Trivandrum, Bolghatty palace at Cochin, the Jewish Synagogue at Mattancherry and Bekel fort near kasargod are some of the important monuments that survive today.

Mention may be made of certain pilgrim centres also Kerala possesses certain important centres of pilgrimage like Sabarimala and Guruvayoor where the annual flow of devotees exceed more than one million. Malayattoor, the Christian centre of pilgrimage also attracts a large number of devotees.

Facilities

Resorts do not emerge as popular tourist centres without being provided various kinds of facilities even if they are endowed with a wide variety of attractions. In fact, the natural endowments are only the

background elements. Even the **pulling power of the endowments remains an unknown entity**. What **is required in tourism is provision of various facilities in conformity with requirements of thè tourists. The starting point is accommodation.**

Hotel facilities have not expanded much in Kerala. The total number of room available at all the resorts as on 1986 was over 10,200 with 18,105 beds. The available capacity cannot be stated to be adequate from any standard. Actually, part of the facilities are required for catering to the needs of the general travelling public. Further, many of the tourist resorts like Pathiramanal, Vazhachal, Muppillangadi, Silent Valley, Nelliampathy and Kappad do not have any accommodation facility at all.

Since the demand is the dominating factor in determining the size of the tourist market, any expansion of hotel facilities should be on the basis of the preference expressed by the tourists themselves. The mode of accommodation preferred by 179 foreign tourists who were interviewed during a survey in three centres is indicated in the Table.

The Table indicates that overwhelming majority of the respondents wanted only ordinary hotels. The low occupancy ratio of the star hotel in combination with the preference of the foreign tourists for ordinary hotels point to the need for promoting ordinary hotels. In this connection the observation of Ian M. Matley about the conditions in Europe is worth quoting, "the relative popularity of Spain in the last couple of decades over Italy and south of France had been attributed to its relatively low prices. Similarly, Yugoslavia, Romania and Bularia have been the latest countries to develop their coast for tourism and to offer low-cost vacations to sun hungry northerners." The policy of the government seems to be for promoting posh-hotels of star variety. Such hotels requiring huge investment may not attract large number of tourists. Instead, the policy should be to construct cheap, but neat hotels in order to attract more number of tourists in the years to come.

In the context of the inadequacy of accommodation, it would perhaps be a sound policy to allow foreign tourist organisations and agencies to organise their own accommodation facilities in this country-of course under proper safeguards, as is being done in the Mediterranean region by some north European countries. Facilities in conformity with the needs and desiers of the foreign tourists can be ensured in a better way by such a step.

Throughout the world, tourism is a seasonal affair. The peak season falls during the months of July-August-September in Western Europe and Nor America. This season correspon to the summer vacation period f educational institutions in tho countries. The peak season Kerala on the other hand fa during Dec-Jan. The clima of Kerala is extremely agreeab during this period for visito from all parts of the wor However, attempts should made to attract more touris during the other months of t year, in order to make tourism viable venture. The main difficul is the intermittent rains bei experienced in Kerala duri June-July-August. Kerala can ho to attract tourists during the rai season also by introducing vario types of water sports like boatin fishing etc.

Table

Mode of Accommodation preferred by Tourists

Mode of Accommodation	*Percentages of tourists in*			
	Kovalam	*Cochin*	*Thekkady*	*Total*
Charitable institutions	–	2.27	–	0.57
Private accommodation	4.93	2.27	6.0	4.57
Yatra nivas	–	2.27	–	0.57
Hotel	2.46	–	–	1.14
Ordinary hotel	80.20	80.0	69.80	78.85
Middle sector hotel	6.17	13.15	18.18	9.71
Star hotel	6.17	–	6.0	4.57
Total	100	100	100	100

Obstacles

Though India is a vast coun with a variety of tourist attractio her share in the world tour arrivals does not form even (per cent of the total. The pc performance of India ste mainly from the location of Inc at a long distance from the ma tourist originating countries li the U.S.A, Great Britain, W Germany, Japan etc.

The distance which is more th 5000 miles from Western Euro and 8000 miles from the U S with an air fare of more than 15000/- from Western Europe a Rs. 18000/- from U.S.A. per tr respectively weakens the prospe of Kerala emerging as an attracti tourist destination. The difficu becomes all the more serio because there is no internatior airport in Trivandrum. At prese visitors to Kerala land in Delhi Bombay and then take a flight Kerala after encountering a lot inconveniences. After visiti Kerala they go back to Bombay Delhi for their return trip. It is n only a costly one but also a tin consuming process After all, tin is money according to tl American standards. Natural many of the potential touris would skulk Kerala.

(Contd. on page 3

Coffee Industry : Problems And Prospects

Dr. I. Satya Sundaram

The coffee industry in India is facing the twin problems of glut in stocks and rock-bottom prices. Tracing the growth of the industry over the years, he describes the current situation as serious and points out that financial institutions are reluctant to extend loans to the growers. The author comes out with several suggestions to save the coffee industry through higher exports and domestic consumption.

COFFEE crop in India during the decade preceding 1940 had been around 29,000 tonnes. The area under coffee remained more or less stable between 1931 and 1939 ranging from 70,400 Ha to 72,000 Ha.

The outbreak of the Second World War in 1939 left the coffee industry in distress as the shipping lanes were disrupted and the internal market could not absorb the entire output. Karnataka accounts for 70 per cent of coffee production in the country.

In the 1980s, coffee emerged as the second largest traded commodity in the world, after oil. The International Coffee Agreement regulates exports. There is also a price-linked system of quarterly quotas to regulate demand and supply. South America is the largest producer followed by Africa, North America and Asia. India accounts for two per cent of the total world coffee production. During the period 1980-85, the average annual world coffee production was over 5,460 million Kg. The US department of Agriculture has estimated world production for 1989-90 at over 95 million bags. Current glut in international market is likely to last till 1993.

Domestic Consumption

Domestic consumption of coffee has been growing at an annual average rate of less than four per cent in the 1980s. The per capita. consumption of coffee was 80 grams in 1960-61, 64 grams in 1970-71 and 75 grams in 1984-85.

The area under coffee crop has also steadily increased. At present an estimated 2.4 lakh hectares are under coffee cultivation of which 1.25 lakh hectares are under *Arabica* and the rest under *Robusta*. The Coffee Board had assumed an average 5.5 per cent growth in expansion of area under coffee, half of which is supposed to be new area and the other half through replanting. While the current output is around 2,20,000 tonnes, it is likely to be around 3.06 lakh tonnes by 2000 AD.

Productivity of the crop showed an encouraging trend touching 930 kg. per hectare in 1985-86 compared to 235 Kg. in 1944-45. Of the 1.17 lakh coffee growers, as many as 1.10 lakh operate on less than four hectares each. The coffee industry stabilised itself by improving its productivity, to record levels through adoption of scientific farming practices.

When coffee prices rise, there is a tendency to use a higher percentage of chicory. Chicory is sometimes sold separately. This is intended to reduce net price as blended coffee/chicory is subject to excise duty. In the mid 1980s, there was higher diversion to instant coffee.

The International Coffee Organisation (ICO) suspended the quota system in February 1986 in the wake of the crop failure in Brazil. It is expected that the demand for instant coffee will considerably go up in the coming years.

Problems

The internal off-take fluctuated between 53,000 and 54,500 tonnes for six years from 1981. Only in 1987-88, domestic sales are reported to have crossed the 60,000 tonne mark.

In 1988-89, coffee production was 2.17 lakh tonnes. The domestic market may absorb 60,000 tonnes and exports to quota countries may be around 52,000 tonnes. India could of course dispose of the large surplus mainly because of the non-quota market, especially the USSR. The minimum carry over stocks would be around 50,000 tonnes. The accumulated stocks continue to be a grave problem.

The Indian coffee growers are also facing the problem of low minimum release price (MRP). In 1988, the Government increased this by 28 per cent, to provide relief to the growers. The revised MRP has not helped them to clear the already piled up stocks.

There is the problem of uncertainty on the export front as world coffee prices fluctuate frequently. In 1988, ICO had decided to accord quotas on the basis of *arabica* and *robusta* crop production. In that year, India had been able to get 1.65 per cent of the global quotas for both the varieties against 1.41 per cent in 1987.

The coffee industry is facing fall in export prices. In the first nine months of 1989-90 (April-December) India exported a record 98,833

Table I

Trend in Coffee Production

(000 tonnes)

Year	Arabica	Robusta	Total
1980-81	61	57	118
1981-82	74	76	150
1982-83	74	56	130
1983-84	71	34	105
1984-85	80	116	196
1985-86	72	50	122
1986-87	89	103	192
1987-88	65	55	120

Table II

Quantity and value of coffee exports from India

Year	Quantity (tonnes)	Value (Rs. million)	Unit value (Rs./Kg)
1980-81	86253	2141 6	24.83
1981-82	83817	1668.8	19.91
1982-83	83824	2035.4	24.28
1983-84	71179	1750.5	24.59
1984-85	68896	2096 8	30.44
1985-86	99298	2749 8	27.69
1986-87	86249	3674 8	42 61
1987-88	92444	2597 6	28.10

tonnes of coffee at the rate of Rs. 29,376 per tonne. In the corresponding period in 1988-89, it was 71,692 tonnes at the rate of Rs. 33, 589.

Government has initiated measures from time to time to boost coffee exports. The export duty was brought down in January 1987 from Rs. 10,000 per tonne to Rs. 6,000. In March that year, it was reduced to Rs. 3,000. In August 1988, it was further slashed to Rs. 1,000. However, exporters are worried about steady decline in world market prices. They are demanding complete withdrawal of export duty on coffee. India's share in world coffee exports was 2.4 per cent in 1980-81, 1.6 per cent in 1984-85 and 2.2 per cent in 1987-88.

Current Trends

The crisis in coffee industry is largely due to a massive glut in production, particularly in surplus years. The Annual Session of the International Coffee Organisation (ICO) held at London in 1988 had fixed generally higher quotas for the 'mild' group, of which India is a prominent member. It also, for the first time, brought in a strong preference for *Arabica* coffee over *Robusta*.

The ICO has been trying to protect the interests of countries like India by ensuring price stability It declared that the global quota fixed at 56 million bags in 1988 would not be reduced below 53 million bags or increased above 63 million bags.

Talks on the International Coffee Agreement were held at London in June 1986. They were aimed at a new agreement or at least an extension of the present one. The talks, however, failed, creating a climate for coffee prices to crash. Experts are of the view that any new agreement should do away with the division of the market into members of ICO and non-members. This may not the interest of India as se small producers have gr access to the non-quota marl

The coffee industry has exhi encouraging trend on the e: front in recent years. Export expected to reach a new high to 1.6 lakh tonnes, worth abou 3,750 million in 1989-90, surpa the 1985-86 figure of 99,000 to However, the unit value realis has declined, mainly becau higher production in Brazil.

The Government seems t inclined to enhance the mini release price to provide reli coffee industry now facing twin problems of glut in stock rock-bottom prices. The situ has become so serious that financial institutions are relu to extend loans to the growers total lending by banks to c industry stands at Rs. 1800 mil The Government appears support the view that mar growers should replace c plantation by more lucrative like tea. The collapse of the I national Coffee Organisatio July 1989, leading to the suspe of quotas has led to virtual cra coffee prices.

The coffee industry is no d receiving incentives like subs and replantation loans, but are irrelevant in a situation w output grows faster than dem Attempts should therefore directed towards improving productivity. Also, the prod may be encouraged to adopt i corpping of coffee plantation spice crops such as pepper would ensure stable income t producers. The retail pric coffee has been hiked by Rs Rs. 5 per kg. by the coffee tra industry.

The coffee industry is bad need of a clear-cut marketing promotional policy by which domestic consumption is incre substantially and the sale to quota markets is also steppe

The author
Free lance Journ

The Significance Of Akash For DRDO

Dr. V.S. Arunachalam

AKASH– the medium range surface to air missile flight had its first test from the intermediate test range at Chandipore in Orissa. Akash is one of the missile systems of the Integrated Guided Missiles Programme now under-way in the Defence Research and Development Organisation. The very advanced system of Akash includes a powerful solid propeller which is much better than the ones that are available today and the ram-rocket system as the sustainer This ram rocket system, in fact, uses the atmospheric oxygen as the oxidising element and burning with kerosene or other liquid propellent.

Advanced Radar System

The solid state booster system was tested satisfactorily on August 14 In addition to these propellent systems, Akash may also have a terminal homing. Terminal homing is actually an eye given to the missile which can detect and track the target before destroying it. Any surface to air missile system needs a radar to detect the intruder aircraft. This, in Akash, is a very advanced system. A phased array radar is likely to be introduced in it which can track not just one enemy aircraft at a time but about a dozen. This system will make it possible for firing not just one missile but a dozen missiles. This advanced phased array radar system has almost four thousand radar transmitters which provide radar beams that can track the enemy targets accurately. This radar is now under development at the Electronic and Radar Develoment establishment at Bangalore. Akash is the last of the missile systems of this guided missile programme that has just been tested.

Trishul, which is also a surface to air missile, but with a limited range, but agile, is now actually under production for the army's requirements. So is Prithvi, which is a surface to surface missile with a range upto 250 kilometres. Prithvi has many advanced systems including a strap down inertial navigation system which is really the one that finds the path and determines the movement accurately so that the missile impinges where we want it to go.

The technology demonstrator Agni created quite a sensation when test fired last year from Chandipore. It has a long range and can carry an enormous payload, more than many of the long range missiles of this class. But guided missiles is only one of the major programmes of the Defence Research and Development Organisation. We also have long range programmes like the Light Combat Aircraft (LCA) as well as the Main Battle Tank. The LCA and MBT are equally complex projects because of the fact that we want hundreds of hours of trouble free flying thousands of kilometres of very difficult terrain. So they do take a long time. But we have to prove not only the technology but also the endurance and reliability too.

Indigenous Development

What is more exciting about all these major programmes is the indigenous development of technologies. We are not developing these technologies at a single laboratory or from one establishment. The whole country is working for this programme. Universities, production agencies both from the private sector as well as the public sector, research laboratories from various departments; all are participating in this programme. The hundreds of participating agencies are pooling together their strength, competence and commitment to these major programmes. It is all very well to say that this programme is delayed and that programme has not met its objectives in full. But our country had missed the industrial revolution. We are trying to set up advanced industries, we are trying to enthuse our scientists and technologists in other advanced countries which had enjoyed hundreds of years of technological superiority.

To quote Pandit Nehru's phrase "we are again asked to run before we have even learnt to walk". But out of this commitment comes that very great excitement of all the participants—scientists, technologists, workers and managers. All these show that the country's science and technology institutions, in general and in Defence Research and Development Organisation in particular, have come a long way in the complexity of problems they undertake and the technological sophistication they bring in. In fact, some of the technologists can be called the Crown Jewels of our country.

The credit for this clearly belongs to the thousands of Indian scientists, technologists & workers who have risen to the occasion and taken to science and technology. Or is it that very way of life they profess ? □

(Courtesy : AIR)

Saving Salt Water Crocodiles Around Andaman Islands

A.K. Chaturvedi

THE INDIAN NAVY LAUNCHED in Andaman and Nicobar Islands a drive to flush out foreign poachers from Indian waters. It was given a fascinating name, Operation Jackson Creek. In the twenty five operations which ended on 31st March, fortyfour foreign poachers were appre-hended for poaching crocodiles near the Jackson Creek in little Andaman. Five of the poachers are said to be Indians, five others are Burmese and the rest Thais. Our Navy also recovered five trawlers and as many boats, 16 live crocodiles, 39 rounds of cartridges of AK-47 rifles and a large number of sophisticated equipment for catching crocodile. It was a joint Army-Navy operation in which five Naval ships, two Coast Guard ships, 350 Naval personnel and over a hundred Army jawans took part. Their job was to nab the poachers in the dense jungles and marshy land of the Creek. The Fortress Commander of INS Jarwa, Vice-Admiral S.W. Lakhkars had been regularly flying in the area to conduct the operation personally.

The first part of the operation which commenced on the Eighth March, successfully ended with the apprehension of ten Thai poa-chers armed with AK 47 rifles, detonators, harpoons, plastic explosives etc, from the deep jungles of the Jackson Creek. Their mechanised vessels were also taken into custody. On 20 March, the Navy swiftly launched another search and combing operation on receiving a message from the Pilot of Naval aircraft flying over the area. A continued surveillance was kept as a result of which the number of foreign poachers so far apprehended has gone up to thirtynine, comprising Burmese and Thais. Altogether sixteen live crocodiles have also been recovered from them. The third operation began on 25 March and went on for a week in which five more poachers were apprehended. They are said to be Indians.

Salt-water crocodiles are a very rare species in the world. India is lucky to have this particular species in the Andaman waters but they are not adequately protected. Hence, crocodile-hunting is so rife in the Bay of Bengal and Indian Ocean surrounding these island territories. These crocodiles are protected species world-wide but nobody really protects them. In the overseas market each crocodile skin fetches about ten thousand dollars. No doubt, it is a very lucrative business and if two to three hundred crocodiles are captured, not only, finance for the entire expedition becomes available, a factory for tanning them can also be set up. Crocodile skins are used to make suitcases, purses, coats and belts and so on. Its fat is also used in many medicines. Its oil is said to be very effective for rhuematic pain.

While interrogating the poachers, the Navy came to know that Thailand is having a factory called Thaida Company, which deals in crocodile skin. This factory is situated at Renaung Island. They have hired some poachers to hunt crocodiles for them. This was the third occasion when Indian Navy apprehended them. The poachers used sophisticated one million watt lamps which are focussed on the crocodiles to dazzle and blind them. Then they are shot with harpoons. The poachers immediately tie the mouths of the unconscious crocodiles and keep them in wooden cages fitted into their boats. Interrogations revealed that the poachers have already taken away more than two hundred crocodiles from our waters. □

Courtesy : A.I.R.

BOOK REVIEW

Nationalisation in India (Volume one) by Kamal Naryan Kabra, published in 1989 by Subir Ghosh, for Eastern Books, Chaturanga, F-26, Shankar Market, Connaught Circus, New Delhi, pages 263, price Rs. 210.

The book is divided into five chapters The conceptual, and theoretical issues are discussed in chapter one Chapter two reviews the evolution of nationalisation policy in India The sectoral composition, size and slated objectives of nationalisation are analysed in chapter three. Chapter four presents a study of methods of nationalisation. In chapter five the author gives an overview of the political economy of nationalisation in India during 1947-1980

Prof. Kabra of the Indian Institute of Public Administration is a pioneer researcher in the little explored area of the Indian brand of politico-economic polarisation underlying nationalisation. He has, in the study under review financed by the Indian Council of Social Science Research, produced a comprehensive and authentic profile of Indian nationalisation since independence up to 1980, which will greatly benefit policy makers, students and general public. The history of nationalisation has been captured, analysed and presented as a cogent development. Government has made use of nationalisation as an instrument of state intervention in a bid to promote growth with equity

There were two distinct phases of nationalisation in India. In the first phase (1947-68) the Government brought the Reserve Bank of India, nine major airlines, Imperial Bank of India and life insurance business within the fold of public sector management. The second phase (1969-80) began with the bank nationalisation covering 14 major commercial banks. This was followed by nationalisation of coal industry, general insurance and a large number of engineering, shipping oil and other miscellaneous compaines, culminating in the take-over of the Maruti Ltd., in 1980

Nationalisation gives rise to monopoly conditions in the State sector. There is dichotomy in the approach to monopoly via nationalisation and via market mechanism under free enterprise. The former is considered good and the latter bad for the economy, given the bias against capitalism. The rising tide of communism/socialism with focus on (a) state as the supreme benevolent authority and (b) state ownership of means of production, centralised planning and direction as the ideal arrangement for accelerating the pace of development and distributive justice was felt after the Russian revolution and particularly after the emergence of the Soviet block. The post-second world war experiments of reconstruction and economic revival were conducted with diverse sets of policy instruments on either side of the Iron Curtain.

India opted for 'mixed economy' combining plus points of capitalism and socialism and seeking a synthesis of both systems. Nationalisation did fit into the scheme of strengthening the economy. According to the author, it was not fully integrated with the planning process. The study has brought out the changes in pattern, size and methods of nationalisation pursued in India during 1947-68 vis-a-vis those during 1968-80 along with explanations relevant to such shifts. Appendices contain very useful statistical information on various aspects of nationalisation, including the financial parameters. Different methods of nationalisation are summarised in Table 1 and 2. Table 1 to 6 at the end of chapter 5 contain data on broad macro economic magnitudes.

In the concluding chapter the author has tried to build-up a theoretical framework by extensively quoting from reference books and documents consulted by him. Despite sincere efforts to explain the main themes and connected issues; presentation suffers from lack of clarity in some paragraphs because of over-crowding of ideas.

Thinking and perception in political economy has undergone a sea change during 1980s. The capitalists and votaries of free market economies have won over their socialist counterparts. Virtues of socialism and central planning are being questioned even by their erstwhile staunch supporters. Such is the swing not only in public mood but also in the views of experts, politicians and leading world personalities. Government is viewed as an obstacle to development. Reducing the role of the public sector and the government in the business of development is the most wide advocated and readily accepted prescription. The process of economic liberalisation has caught up and replaced the bogey of the supremacy of state intervention in correcting market failures and imperfections. The emergence of Thacherism in U.K. and of Reaganisam in U.S.A. has also contributed to the new trend of privatisation. In the more recent developments in the Eastern Europe and the Soviet Union socialist ideas got the worst beating.

In the changing scenario of countries vying with one another to adjust towards more efficient and growth-oriented market economies based on private enterprise and globalisation, nationalisation has ceased to be an ideal instrument of state policy. However, Prof Kabra's study of the application of nationalisation in the Indian context will remain an useful contribution to the literature on the subject.

M.K. Ghoshal

PLANNING FOR RURAL DEVELOPMENT By Ravindra H. Dholakia and Sudarshan Iyengar. Published by Himalaya Publishing House, Ramoot, 12 B, Dr. Bhalerao Marg, Bombay. First published: 1988. Pages 133. Price Rs. 100.

This study is based on the author's first-hand experience of action-research carried out in Gujarat. With the help of mathematical formulae and equations, they have come to certain conclusions with regard to the implementation of rural development programmes. In their view the performance of the programme/scheme has to be measured in terms of their aims and objects. As such, in order to ensure success of the scheme, it is imperative to make the most prudent use of all the available resourers at the micro unit while operationalising the macro-level plans.

The authors start off with a general observation by saying that recognition of the limitations of the Mahalanobis model of planning from the viewpoint of the Indian economic environment has led to reconsideration of our basic strategy for planning. According to them, excessive emphasis on heavy industries with long gestation period, greater import content, capital-intensive technology and practically no output response in terms of mass consumption items has proved quite contrary to our primary objective of achieving a socialistic pattern of society. An important observation made is that the best generalisation about rural development projects in India without many exceptions could be that generalisations are not possible. Each project in each area becomes a separate experience. The geophysical situation, socio-political factors and cultural-demographic environment vary substantially within the regions of a state. The authors took up certain cases and analysed them for giving their findings.

It has been found that in many cases there has been misidentification of beneficiaries in the Integrated Rural Development Programme (IRDP). Those who did not deserve help under the programme, got it while the most needy could not. The social goal is to help those households under IRDP who either did not or could not raise capital to invest in a productive asset that guarantees a continuous stream of increased income over time. The authors studied three cases and in all of them they found the identification of beneficiaries faulty. They point out that poorer the household higher is the social value of the economic return from a subsidised capital. Capital subsidy must help the poor to cross the poverty line but it has not been the case in practice.

Navin Chandra Joshi

(Contd. from page 28)

One way out from such a situation would be to open an international airport at Trivandrum. If an airport is opened at Trivandrum, it can facilitate foreign tourist arrivals in Kerala without causing unnecessary inconyenience. Needless to say, the interest of the tourist is more important than that of the supplier in the tourist market. By opening up an international airport at Trivandrum a tourist wno is interested to visit India can land at Bombay or Delhi and visit Kerala after visiting north India and then take a return flight from Trivandrum. Or as an alternative, he can land in Trivandrum, then proceed to the north after touring various centres in the south and finally take the return flight from Delhi or Bombay. Such a course would be very convenient to the visitors who are interested to visit all parts of India. On the other hand, there would be tourists who are interested in visiting Kerala alone or other parts of South India. They can land in Trivandrum, visit various resorts in Kerala and then visit other parts in south India and then take a return trip from Trivandrum or Madras. Further, Trivandrum is located in close proximity to the international air flight routes to the East from the West and vice-versa. An international airport can convert Trivandrum as a stop-over to a good number of tourists who visit from the West to East or vice versa, especially in the context of the conditions of insecurity prevailing in Srilanka. Opening of an international airport at Trivandrum would be a far-sighted step to promote tourism not merely in Kerala but also in India as a whole

In sum, tourist potentiality of Kerala remains as a resource, yet to be exploited. Sound policies have to be evolved and implemented if the resources are to be tapped to the fullest extent possible. Provision of cheap but neat accommodation and facilities for entertainment would be some of the measures to be taken as a starting point to cater to the needs of the tourists. Side by side, promotion of domestic tourism in the context of its importance as a world-wide phenomenon would also be a desirable step to take full advantage of the tourist attractions of Kerala and at the same time to minimise the adverse effects of seasonal variations in the tourist flows from outside.

The author is professor of Economics in St. Xavier's College, Thumba

Computer based Information

For the first time in India a computer-based information service called CODIN was launched by the Department of Electronics. The system will bring the Electronic component information to the finger tips of the professionals. It has been developed by the Directorate of Standardisation Testing and Quality Control (STQC).

The salient feature of CODIN is availability of technical information of about 3000 components classified into 12 component families of the electronic sector. Another feature is the ready availability of commercial information on component manufacturers and distributors.

Initially the CODIN facility will be available free of charge to the manufacturers and others in the electronics field. But in due course they will have to pay for the facility.

Freight Operations

The Railways have taken up computerisation of the Freight Operations Information System (FOIS) at a cost of about Rs. 1098 crores. The project is designed to cover freight operations on the Broad Gauge system within seven years. To begin with, the project has been taken up first on the Northern Railway. Rs. 63 crores has already been spent over the project on the Northern Railway in the last financial year.

When implemented, the project will bring about vast improvement in monitoring of wagons and would improve tremendously the proudctivity of assets and quality of service to customers. It is expected to result in saving of 15 per cent in wagon fleet and 5 per cent in locomotives. Alongwith the computerisation of freight operations, the telecommunication facilities on the Railways will also be improved.

Record Profit By HPCL

Hindustan Petroleum Corporation Ltd. (HPCL) has earned a record net profit of Rs. 200.26 crores after tax during 1989-90. The Corporation has been consistently achieving higher profit levels during the 7th Five Year Plan. In 1985-86, the net profit was Rs. 23.33 crores which increased to Rs. 200.26 crores in 1989-90. The internal resource generation during the VIIth Plan period was Rs. 982 crores.

Bombay and Visakh Refineries together recorded the highest ever crude throughput of 100.3 lakh tonnes during 1989-90 and achieved a combined capacity utilisation of 100.3 per cent. The marketing division achieved the distinction of recording more than 100 lakh tonnes sales volume in a single year. The turnover was highest ever at Rs. 6639.83 crores. The contribution to the Exchequer by way of direct and indirect taxes and duties was Rs. 1809 crores.

With the setting up of several new LPG bottling plants under phase III programme, the LPG bottling capacity in the country has been substantially enhanced to meet the demand of domestic customers.

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Dr. Zakir Hussain (S4/3)

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Refugee Resettlement

Amongst the greatest achievements of our Government in the ten years of its existence is the re-settlement of refugees from Pakistan. And it has done so without putting out the begging bowl to any foreign power or agency. Almost all the five million refugees from the Punjab have found homes and means of living. The same process is taking place in Bengal now. Today there are 350,000 displaced persons living in 211 camps. Many thousand others have been put to work in hydro-electric projects, digging canals and making roads, provided for in our Five Year Plan. There are 351 settlements for refugees in the State. New townships, new schools, colleges and technical training centres have sprung up everywhere.

Jail Reforms

The first "Convicts and Ex-convicts Conference" in the world was held recently at Lucknow. It was attended by nearly 300 delegates representing various social organisations. It had also 70 representatives of ex-convicts, convicts-both male and female-undergoing long-term imprisonment for grave offences and probationers. There was no provision of escort or guard of any sort. The prisoners returned to their respective jails at the end of the conference. The Chief Minister of U.P. announced one month's remission in the term of imprisonment of all prisoners in U.P. jails to commemorate the first Convicts and Ex-convicts Conference.

What We Lack

It is not knowledge we lack; it is the will. We must now will ourselves to more work.

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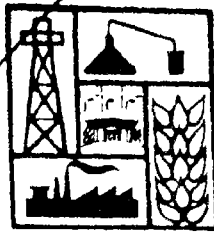
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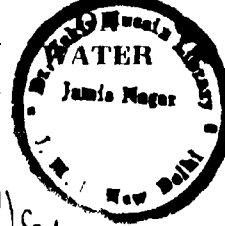
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Development Diary

Neyveli Lignite

The mines, power stations and fertilizer plants of Neyveli Lignite Corporation have been achieving more than the production targets during the last three years. Production in mines in 1989-90 was about 107 per cent of the target. In respect of power generation and fertilizers, the output was about 107 per cent and 111 per cent. NLC has proved that given the required inputs, support and encouragement, public sector units can perform better than private sector enterprises.

Electronics

The value of Indian Electronics exports has gone up from nearly Rs. 42 cr. in 1980 to Rs. 775 cr. in 1989. Electronics has been identified as one of the thrust sectors. A number of policy measures have been taken to promote production and exports. These include larger investments in Electronics, reduction in the cost of indigenously produced components and equipment, encouragement to indigenous technology by strengthening in-house R&D activities, development of micro-electronics industry and its applications and promotion of an internationally competitive computer industry.

Fruits and Vegetables

Production of fruits and vegetables in the country has registered a five-fold increase during the last 20 years. It was 2.40 lakh tonnes in 1989 compared to 52,274 tonnes in 1970. The number of licences to fruit and vegetable processing units increased to 3629 this year against 1994 in 1970. There has also been significant increase in the exports of fruits and vegetables. Rs. 79.48 crore worth of fruits and vegetables were exported in 1989 against Rs. 21.90 crores in 1980.

Record Profit

Hindustan Petroleum Corporation Ltd. (HPCL) has earned a record net profit of Rs 200.26 crores during 1989-90 The Corporation has been consistently achieving higher profit levels during the 7th Five year Plan. In 1985-86, the net profit was Rs. 23.33 crores.

Bombay and Visakh Refineries together recorded the highest ever crude throughput of 10.03 million tonnes during 1989-90 and aheieved a combined capacity utilisation of 100.3 per cent.

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It is hereby clarified that in future if an article is found to be plagiarised, it will be the sole responsibility of the contributor to face legal action, if any.

Water

The curtain falls on the International Drinking Water Supply and Sanitation Decade this year end. Delegates from over 100 developing countries gathered in New Delhi recently to take stock of the progress made and the tasks ahead. The New Delhi Statement, issued at the end of the Global Consultation on Safe Water and Sanitation for the 1990s, among other things, calls for increased financing, sound environmental management and greater participation by the private sector, communities and women to serve the unserved. Here is a summary record of the interna 'ional meeting and an overview of the performance ı the supply of safe drinking water in India's rural areas and the outlook for the new decade.

THE United Nations Conference on Human Settlements held in Vancouver 1976 called for urgent action to adopt programmes with reslistic standards for quality and quantity to provide water for urban and rural areas by 1990 if possible and to adopt and accelerate programmes for the sanitary disposal of excreta and waste-water in urban and rural areas In 1977 the UN water Conference in Mar Del Plata recommended that 1981-90 should be designated as the International Drinking Water Supply and Sanitation Decade In November 1980, it was proclaimed as such by the UN General Assembly

The Water Conference recognised the serious health consequences of lack of water supply and sanitation and stressed the need for giving priority to the poor and less privileged and to water scarce areas. It called on countries to establish realistic goals for 1990 The Conference recommended that countries should

- develop national plans and programmes for water supply and sanitation
- initiate immediate engineering and feasibility studies on projects of highest priority
- assess their human resources situation and establish training programmes
- mobilize public opinion and community participation
- establish institutions for planning, implementation and monitoring programmes
- coordinate efforts to ensure provision of technically and socially acceptable sanitary facilities
- develop revolving funds to encourage mobilization of resources and equitable participation of beneficiaries while discouraging wasteful consumption

The Conference's Plan of Action, among other things called on the international community for increases in financial contributions, extension of cooperation for the implementation of high priority projects and programmes and greater emphasis on social benefits.

The Decade in Context

The situation of the world economy during the course of the Decade was painfully disappointing to many developing countries. Within just a few years of the Decade's (countries of less developed r encountered such adverse e) conditions as a sharp fall prices of non-oil primary con ties on which they relied for of their export earning, and a rise of real interst rates ' immediately resulted in accumulation of foreign de the decade advanced the dow in growth became more ob Poorest growth was experi by least developed cou particularly those in sub-Sa Africa, which were also ra by drought, famine and disasters.

As voluntary financing to h indebted coutries virtually st at the beginning of the Decac net transfer of financial resou developing countries, measu the total financial flow (offici private) minus the net paym interest, dividends and other c servicing, was reversed in The developing world whic been traditionally the net rec of financial resources is no net supplier of resources (developed world and the a of such transfers grew to than US $ 30 billion in 1988 cost and increasing difficul external financing hit most se those governments which r for the financing of their investment on external sc which was made availal relatively low cost in the 1970 put pressure on public inves programmes in water suppl sanitation at the same time as of these countries went th wrenching fiscal adjustmen

Population Growth

An important factor contri to deteriorating living stan is the high rate of popu growth By 1987 the w population grew to over 5 l which was largely due to the growth of population in devel countries where the growtl averaged 2 1% per year duri first half of the decade, as com to 0.6% per year in more industr regions.

Global Consultation

THE launching of the International Water Supply and Sanitation Decade (IDWSSD) represented a major national and international commitment to provide safe and affordable water supply and sanitation facilities to th less privileged in the developing world In an effort to review what has been achieved and focus on the challenges that still lie ahead, the Global Consultation on Safe Water and Sanitation for 1990s was held in New Delhi recently. Over 600 delegates from more than 100 developing countries and 28 donor aid agencies took part The warning by a world group of experts that without new strategies and greater financial commitments, the hardship faced by more than a billion people lakcing safe water and sanitation will turn into an unmanageable crisis, set the tone of the meeting

New Delhi Statement

The "New Delhi Statement" issued at the end of the Global Consultation. calls for increased financing, sound environmental management, different role for government and greater participation by the private sector, user communities and women in order to serve the unserved

The importance of clean water and adequate sanitation, generally taken for granted in industrialized countries, looms as a life and death matter elsewhere. Eighty per cent of all diseases in developing countries is directly related to poor drinking water and insanitary conditions. As of now over 100 crore/ people in the developing world lack safe drinking water, while over 170 crore suffer from inadequate sanitation. Unsafe water is the leading cause of diarrhoeal diseases, which annually kill 40 lakh children under the age of five. Guinea worm disease, a debilitating illness that affects 40-50 lakh people each year in Africa and Asia, is caused solely by unsafe drinking water

Althogh the Decade did not achieve its ambitious goals, it has shown impressive results. During the last ten years over 130 crore new users have been supplied with uncontaminated drinking water and 75 crore with new sanitary facilities However the New Delhi Statement points out that despite unprecedented efforts in the 1980s, one in three of the developing world's poorest people still lack the basic water and sanitation needs.

"Entering the 1990s, population growth remains unchecked. Infrastructures in many cities is stretched to the breaking point. Uncontrolled pollution puts further stress on the living environment and aggravates competition for increasingly expensive wate resources", warns the Statement "Withoug fundamentally new approaches, the hardship will turn to an unmanageable crisis."

Unlike the Water and Sanitation Decade coming to an end, the New Delhi plan does not call for specific goals of service to all by the year 2000, but emphasies the need for realistic targets of spending and activity "To reach full coverage by the year 2000 with technologies and approaches would require five times the current investment level of about Rs. 1800 crore a year," the Statement says "That is not a viable option," and doubling the finances to Rs. 2000 crore a year could allow service for all the world's people "to be approached by the end of the century"

The Four – Point Programme outlined in the Delhi Statement centres on four key issues.

– People and the Environment - "New and environmentally appropriate solutions are required. reflecting the need to conserve resources and minimize pollution, and which are affordable to the communities they serve"

– People and Institutions – "The role of government must change, concentrating less on direct provision of services and more on enabling local public and private institutions to deliver them. Privatization is one element...for improving efficiency in service delivery Links with non-governmental organizations need to be strengthened as NGOs are flexible and ready to experiment."

– Community Management – "The key to sustaining services for the rural poor is empowering communities to control their own systems. Women should be encouraged to be active participants in planning, financing and all subsequent aspects of sector development. Women should be trained and given equal employment opportunities at all levels of staff and management."

– Financing and Technology – "Increased efficiency will require changes incentves, to make them more cost effective and responsive to consumer needs and demands. User changes are a key to sector finance. The major criteria in technology selection should be consumer ability to operate and maintain the facilities. Where adequate operation and maintenance is not assured, no investments should be made."

Martin Beyer, Executive Secretary of the Global Consultation and a 20-year veteran of water resources development, called the meeting "the most practical meeting that I have ever experienced in the United Nations. The outcome will have an impact on the quality of life for hundreds of millions of people."

R W S In India

India, one of the developing countries, is predominantly rural in character According to Census Report of 1981, the population was 68.5 crore, of which rural population was 52 54 crore The projected population for 1991 is 79.9 crore of which rural population would be 60.85 crore. The average population growth rate for rural areas for the dcade 1971-1981 is 1.97 per cent The projected growth rate for the succeeding decade would be 1 58 per cent. The total number of villages is 575 lakh and in addition to these there are a large number of habitation, hamlets tolas etc.

Soon after achieving Independence, the need for ensuring wholesome water supply engaged the attention of the Govenment. It formulated policies towards achieving the goal guided by committees such as Environmental Hygiene Committee (1949), National Water Supply and Sanitation Committee (1961), Drinking Water Supply Board (1963) and other related surveys from time to time. The rural water supply activities remained a part of the Integrated Rural Development Approach, until the Third Five Year Plan (1961-66) when Rural Water Supply was linked with other activities of rural development like Sanitation and Health.

Provision of drinking water supply in the rural areas is the responsibility of the States. Funds have been provided in the State budgets right from the commencement of First Five Year Plan in 1951. National Water Supply and Sanitation Programme was introduced in the social welfare sector in 1954. The States gradually built up the Public Health Engineering Departments (PHEDs) to tackle the problem of water supply and sanitation. Inspite of this, it was found during mid-sixties that Rural Water Supply schemes were implemented in the easily accessible villages only, thus neglecting the hard core rural areas or the same villages were repeated. Therefore, the Government of India requested the States to identify *problem Villages* (PVs) so that efforts could be oriented towards tackling clearly identified problem villages

Government of India assisted the States to establish Special Investigation Divisions in in IVth Plan to carry out identification of problem villages

Taking into account the magnitude of the problem and to accelerate the pace of coverage of PVs. the Central government introduced the *Accelerated Rural Water Supply Programme* (ARWSP) in 1972-73 to assist States and Union Territories with 100 per cent grants-in-aid to implement the schemes in such villages. This programme continued in 1973-74. With the introduction of the *Minimum Needs Programme* (MNP) during the Vth Plan, it was withdrawn from 1974-75. The programme was reintroduced in 1977-78 when the progress of supply of safe drinking water to identified problem villages was not as per expectations.

In 1977 the United Nations Water Conference for the first time separated drinking water and sanitation from other water issues, suggesting for them the Decade approach— adopt programmes with realistic standards of quality and quantity to provide water for urban and rural areas by 1990, if possible. The Conference recommened that each country should develop national plans and programmes for community water supply and sanitation... giving priority to the segments of the population in greatest need. India was also a signatory to the resolution seeking to achieve the targets by 1991. Consequently the Water Decade Programme was launched in India on 1st April, 1981 to achieve definite targets of coverage of population by 31st March 1991.

With the coverage of about 94,000 problem villages till the beginning of VIth Plan and resurvey carried out by States and Union Territories for identification of problem villages, about 231,000 problem villages remained to be covered as on 1.4.1980 out of which 192,000 villages were covered in the VIth Plan and the balance 39,000 spilled over to VIIth Plan PVs were again identified through a fresh survey conducted in 1985 an as a result 162,000 PVs remained as on 1.4.1985 to be covered in VIIth Plan

Strategy

The subject of the Rural Water Supply and Rural Sanitation was transferred from the Ministry of Urban Development in August 1985 to the Department of Rural Development, Ministry of Agriculture with the aim of faster implementation of the programmes and their integration with other rural development programmes. In order to accelerate this process of providing one of the basic needs to the rural masses, National Drinking Water Mission was launched as one of the five Societal Missions in 1986.

For providing safe drinking water to the rural population, Government of India continues to give top priority through ARWSP

About 154,000 PVs have been covered in VII Plan and 8439 PVs in 19 States have spilled over to VIII Plan. Subject to the availability of funds the Government is committed to covering the rest of the problem villages within the next two years

Norms

The following norms have been finalised for providing water to villages:

- 40 litres of safe drinking water per capita per day (lpcd) for human beings
- 30 lpcd additionally for cattle in desert districts (DDP)
- One handpump or standpost for every 250 persons
- The water source should exist within 1.6 kilometres having a minimum depth of 15 metres and within 100 metres elevation difference
- The water is defined as safe if it is free from biological contamination (guineaworm, cholera, typhoid) and chemical contamination (excess fluoride, brackishness, excess iron, arsenic, nitrates)

Methodology

55 Mini Mission Districts were identified to focus attention on some of the most difficult parts of the country. Problems in the drinking water horizon have also been identified and treated as *submissions* for the State governments to benefit from integrated scientific and technological approaches. These are.

- control of brackishness
- control of fluorosis
- removal of excess iron
- guineaworm eradication
- scientific source finding, conservation of water and recharging of aquifers
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- water quality surveillance

In addition emphasis has also been on the following areas

- improvement of traditional methods
- purification of water
- improvement of material and design
- Improvement of maintenance methods
- establishment of management information systems and procedures
- community involvement through panchayats and voluntary agencies and
- awareness campaign

Achievements

Villages Covered

Total Villages	5,83003
Villages having drinking water facility/Covered upto VIth Plan	4,21,281
Remaining as on 1 4.1985	161,722
Covered in VIIth Plan	1,53,283
Spillover to VIIIth Plan	8,439
Target for 1990-91	5,295

Iron Removal Plants

Plants to be set up	11,780
Orders placed	7,203
Plants commissioned	2,336

Defluoridation plants

	Fill & Draw type	HP attached type
Plants to be set up	130	375
Orders placed	94	375
Plants commissioned	7	15

Desalination Plants

Plants to be set up.	130
Order placed	130
Plants commissioned	64

Guineaworm Eradication

Conversion of stepwells into sanitary wells (nos.)

Stepwells sanctioned	5,578
Stepwells completed ...	2,576

Villages affected by guineaworm

1 1.1985	8,811
1.1.1986	7,102
1.1.1987	5,634
1.1.1988	4,305
1 1.1989	3,531
1 1.1990	2,529*

* Villages with active cases of Guineaworm

Scientific Source Finding

Source Development (no. of sources)

	Referred	Completed
NGRI	1,859	1,322
CGWB	10,341	10,001
Total	12,200	11,323

Maps Preparation (no. of districts)	
To be Prepared	447
Completed	447

Source finding has been completed in 1000 villages in districts other than Mini Mission districts. Source has been located for desalination plants in 149 villages.

Water Quality Testing

Stationary

Laboratories sanctioned	84
Laboratories functional	33
For remaining 51 laboratories	
Buildings arranged	44
Equipment procured	25
Staff posted	27

Mobile

Sanctioned	17
Handed Over	17

Solar Pumping

Pumps to be set up	120
Pumps installed	44

Overview

A review of performance reveals significant strides as well as areas that remain to be addressd. In statistical terms there has been phenomenal progress in coverage—something any developing country can be justifiably be proud of.

But mere physical provision of the asset goes only half way. The maintenance of this system and its utilization so that optimal impact of the programme on health and productivity is achieved remain critical issues. This calls for urgent

(Contd. on page 22)

NEWSWEEK deserves compliment for the lead article on fluoride. It is now shocking to know that the "legal standard" for fluoride in drinking water in U.S. has been raised from 2 ppm to 4ppm and in tooth paste to 1100 ppm (Newsweek, February 5th, 1990, page 51).We are also aware of the fact that West Germany discontinued fluoridation after 15 years as a result of legal and health considerations (Muller, Elisabeth, Acting Consulate-General of Federal Republic of Germany, Melbourne, Australia : Letter Of Australian Dental Association : Ref. RK 654, 1st September, 1977). A representative of Greece has written that "it has been proved that fluoridation of water results in many pathological disorders" (Kontovounissios, Christos, Second Secretary, Embassy of Greece, Cenberra, Australia : Letter to Mr. Reynolds REF. No F 960/22/AS641, 4th June, 1985). The French Ministry responsible for the environment "has confirmed that France is opposed to fluoridation" (Olivier, M.Consultate-General of France, Melbourne, Letter to Committee of Inquiry into fluoride of Victoria Water Supplies, 17th July, 1979). The national agency for Environ mental Protection in Denmark recommended to the Minister for Environment "not to permit fluoridation of drinking water in Denmark" (Denmark: National Agency of Environmental Protection: Soc. Sci. Med. 16:2155-2158, 1982). There is no fluoridation in Japan and in many other countries.

Defluoridation of Drinking Water

About 85% of rural as well as urban population in India is solely dependent on ground water as the drinking water source, a large part of which has high concentration of fluoride. G. Ghosh, Director, National Drinking Water Mission and A.K. Susheela, Professor, All India Institute of Medical Sciences, in this Paper presented at the Global Consultation on Safe Water and Sanitation for the 1990s, outline, what has been done to deal with this public health problem.

The realities in India are totally different. Due to the earth's crust being extremely rich in fluoride bearing minerals, the water is naturally fluoridated. The maximum fluoride content so far detected is 38.5 ppm (mg/litre) in drinking water. In India about 85% of rural as well as urban population are solely dependent on ground water as the drinking water source, a large part of which has high concentration of fluoride. This is desirable as ground water sources would be economical and could be depended upon.

The origin of fluoride, like most other minerals, is associated with volcanic and plutonic activities in the crust of the earth. Fluoride occurs as calcium fluoride. In the acid plutonic rocks like granites, it occurs in the form of fluor-apatite. It also occurs in mica and calcium phosphate deposites. Basalts contain 100 ppm (parts per million), whereas granites contain as high as 500 to 850 ppm of fluoride. Shales and deep sea clay deposits contain 740 and 1300 ppm of fluoride respectively. Alkaline rocks contain the highest percentage of fluoride (1200 to 8500 ppm) Alkaline water also shows high enrichment of fluoride.

Drinking water containing fluoride ranging from 1.5 to 38.5 ppm has caused several health problems in India since the last 50 years. Initially the health problems were known to exist in 4 States of India, two in the Southern and two in the Nothern parts and nowhere else But today, 13 States of the Indian Republic have been identified endemic for fluorosis and associated health problems as a result of fluoride contaminated water It has become an urban as well as a rural health problem; affecting the poor and rich alike

Public Health Problem

What did the Government of India do, to deal with this public health problem ? Since early 1930s, the major focus has been to promote basic researches, epidemiological studies and clinical research to understand fluoride action on body tissues and the health problems in its totality Researches in this field are still being promoted by various national agencies. An International Agency viz. the International Development Research Centre (IDRC)

Canada has supported fluorosis research in India in the recent past.

India is possibly the first country to launch a National programme on Fluorosis Control or Defluoridation. To tackle the drinking water problem, on a war footing, the Government of India during 1986, set-up a Technology Mission on Rural Drinking Water and related water management in the Department of Rural Development as the nodal agency. The strategy adopted for visible results is to focus on Sub-Missions, countrywide The major Sub-Missions operating are (1) Control of Fluorosis (2) Eradication of Guineaworm (3) Removal of Excess Iron (4) Removal of salinity alinity and Brackishness (5) Source Finding and Water Management and (6) Water Quality Surveillance. The methodologies adopted are (1) purification of water (2) improvement of technical methods (3) improvement of materials and design (4) improvement of maintenance methods (5) computerized management information system (6) scientific source finding (7) continuous monitoring and evaluation (8) community involvement and (9) awareness programmes.

The activities are essentially an update programme which include information on clinical manifestations, diagnosis, early warning sings of fluorosis and procedure to identify subjcts afflicted with fluorosis under field conditions, without having to carry out sensitive laboratory based tests, besides educating the people on the importance of drinking safe water Water quality assessment and defluoridation procedures both at the domestic and community defluoridation installations, are dealt with. Even some of the text books on Public Health Engineering still describe procedures to fluoridate drinking water rather than defluoridation Fluorosis is considered as a disease which has no treatment or cure and preventive aspects are often neglected. It is also true that the disease was very often misdiagnosed as arthritis, spondylosis or joint pain We are not surprised to note the statement in Chemical Engineering News (Page 37, August, 1988) that most Doctors in U S have not studied the disease and do not know how to diagnose it It therefore emerges that even in U S the early warning symptoms of fluoride toxicity/poisoning may not be understood at all

- In an endemic area for fluorosis, it is not necessary that every source of water is contaminated with fluoride The good sources are identified, labelled and the people are informed to consume water from the good sources only, whereas the fluoride contaminated sources are used for washing and cleaning purposes If the yield of water is less for consumption at the rate of 20 Litres per capita per day (LPCD) for human consumption, possibilities are also explored for mixing the water from alternative sources, thereby diluting the concentration of fluoride to permissible levels
- We have also data in India to suggest that with 0 4 ppm of flouride in drinking water is causing mild, moderate and severe forms of dental fluorosis and therefore we are looking for water with less and less fluoride contamination
- It is also a fact that due to atrophy of muscle fibre and connective tissue of the body including the oral cavity caused by the use of fluoride, people living in endemic areas [illegible] edentulous (loose teeth) at an early age, looks much older and many (who can afford) resort to the use of denture
- We also have health problems with excess ingestion of fluoride associated with kidney function which has been confirmed by leading Nephrologists in the country
- Muscular weakness, loss of muscle power and neurological mainfestations leading to excessive thirst, tendency to urinate more frequenctly, although the volume of urine is not too large, are not uncommon among the afflicted individuals
- Severe and widespread gastro-intestinal problems viz anorexia, pain in the stomach, intermittent diarrhoea, chronic constipation, gas formation and bloated feeling in the stomach (Non-Ulcer Dyspepsia) caused due to drinking fluoridated water have been confirmed Changing the source of water with low levels of fluoride (below 1 ppm) provides relief from the gastro-intestinal problems within a period of 2-3 weeks
- Under the Water Mission, in the affected areas where there are no good sources of water, domestic defluoridation procedures are being popularized among lactating mothers as well as pregnant (expectant) mothers besides erecting community defluoriation tanks for the public Alternative source (s) of safe drinking water, either by bringing in from a distance through pipelines (if economically viable) or look for other underground sources are also considered for implementation

Nalgonda Process

The excess fluoride can be removed from water by what is known as the "Nalgonda Process" which [illegible] rapid mixing of water with lime ([illegible] or $CaCO_3$), alum and bleaching powder (for disinfection). The process removes fluoride by flocculation. Lime ensures adequate alkalinity needed for hydrolysis of aluminium salts If the water is more alkaline, lime is not needed. This process has however, certain limitations and is not effective if the TDA of water is above 1500 ppm and the hardness is above 250 ppm. The method is otherwise simple and can be used at domestic

or community level. The only precaution needed is not to add excess alum. Otherwise a residual metallic taste will be there. The Nalgonda process involves removal of excess alkalinity and bicarbonates also which is an added advantage.

The "fill and draw" type of community defluoridation system is used when the requirement of water is more. The cost works out to Rs. 3 to 5 per 1000 litres, that is US$ 4.5 per year per person. This also involves the same chemical process as that of Nalgonda process. Defluoradation units attached with handpumps have also been designed and put for field operation in the rural areas of India.

The wrong communication strategy also creates problems and results in misconception regarding the role of fluoride in water, toothpaste and even in salt. When such communication is circulated all over the world it gives the wrong message for the general public. In fact, in major part of the globe excess fluoride is a problem. China is reported to have nearly 32 million people affected by dental flluorosis and 1.75 million people by skeletal fluorosis. It would be worthwhile if WHO can take a leading role in giving the correct message to avoid confusion and misconception. In the developing countries, to prevent dental problems, the need of the hour is not fluoride but adequate awareness about the importance of oral health and hygiene besides providing adequate calcium and vitamin C in the diet

Some developing nations are now reporting on the unsuitability of WHO guidelines for fluoride concentration in drinking water. A recent report from Netherlands, based on a study in Senegal has shown dental fluorosis in children where fluoride in water ranged from 1.0 to 7.4 ppm. Prevalence of mild dental fluorisis is 68.5% at 1 ppm of fluoride in drinking water; when fluoride exceeded to 4 ppm, prevalence of dental fluorisis reached 100%. It has been suggested that the WHO guidelines for fluoride concentration in drinking water in Senegal is unsuitable and the upper limit should be reduced to 0.6 ppm (Lancet: 11,223-225, 1988). It is now quite gratifying to note that in India the Regional Office of WHO has extended support to the Water Mission activities particularly the Sub-Mission on "Control of Fluorosis"

It is unfortunate that the use of fluoride for prevention of caries although formulated and brought out 50 years ago by US based dentists, is still being promoted world over without questioning, the rationale or the health hazards which have been emerging due to fluoride poisoning. It has been shown by Indian dentists that by use of fluoridated toothpaste for brushing the teeth, the serum fluoride levels are enhanced within minutes (Rajan et al Fluoride in toothpaste : Cause for Concern, Fluoride 21 : 4, 1988; Rajan et al, Serum and Urine Fluoride in Toothpaste Users, J. Ind. Dent. Assoc, 59:137-142, 1987).

The oral mucosa rich in blood vessels do absorb fluoride ions rapidly. The sub-lingual blood vessels (the one below the tongue) drains the stuff directly to the superior venecava and then to the heart. It is not true that toothpasts never enters the body unless it is swallowed/ingested. Fluoride does enter circulation directly from the oral cavity through the fine blood vessels of the mouth. Fluoride being a persistent bioaccumulator, even small amounts that enter through fluoridated toothpaste is a guaranteed entry not only in children but even among the adults and the cumulative or additive effects of fluoride is causing serious concern.

It has been discovered in India recently that there is no toothpaste marketed which is free of fluoride whether labelled or otherwise. The amount of fluoride arising as a contaminant from the raw material used viz. chalk, talc and calcium cabonate, may be as high as 80 ppm. Over and above the contamination, different manufacturers add fluoride to the extent of 2000-2500 ppm. It has also been observed as a result of extensive laborat[illegible] investgations that the fluoride is [illegible] mixed homogenously in the pas[illegible] When the paste is squeezed [illegible] from different depths of the tu[illegible] the amount of fluoride in t[illegible] fluoridated brand of paste is hig[illegible] variable. In none of the so call[illegible] fluoridated brands of the toothpas[illegible] the quantity of fluoride in the pa[illegible] is revealed on the carton or t[illegible] tube. It is also a fact that, wh[illegible] sodium monofluorophospha[illegible] (SMFP) is added to the paste, it [illegible] known to decompose and the exp[illegible] date of the toothpaste is nev[illegible] revealed either.

In order to ensure quality cont[illegible] procedures in manufacturing, [illegible] maximum contaminant rate of 8[illegible] ppm may be permitted in Indi[illegible] toothpastes, but we are insisti[illegible] on having a warning inscribed [illegible] the carton which should read [illegible] "exess fluoride is injurious to healt[illegible] This would alert the consumer [illegible] look for a paste with least fluori[illegible] contamination. We are also aimi[illegible] at curtailing the false publicity f[illegible] promoting the use of fluoride [illegible] the name of prevention of cari[illegible] Although children below the a[illegible] of 6 years, are not supposed to u[illegible] fluoridated brands of tooth pas[illegible] as per the recommendation of t[illegible] Indian Council for Medical Researc[illegible] invariably the advertisements a[illegible] aimed at children, misguiding t[illegible] public.

Perhaps due to vigorou[illegible] publicity campaign promoti[illegible] fluoride for prevention of caries [illegible] Television, Radio and other medi[illegible] people do not quite realize t[illegible] damage that excess fluoride c[illegible] do to them. It has been shown th[illegible] excess ingestion of fluoride leads [illegible] the accumulation of a particul[illegible] chemical substance viz. dermat[illegible] sulphate, both in bone and teet[illegible] The substance on accumulatio[illegible] to demineralize the area aroun[illegible] both in human teeth as well as [illegible] bone. Such demineralized zon[illegible] in the teeth get pitted and perforate[illegible] in dental fluorosis besides bei[illegible] discoloured (Susheela, *et al*, Arc[illegible] Oral Biol. 33, 765, 1987). The beli[illegible]

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Guinea Worm Disease control

M. Akhter

DRACUNCULIASIS, commonly known as guinea worm disease, is one of the oldest parasitic infections known to mankind It is an extremely painful and debilitating disease which is known to afflict about 20 million people in Africa, India and Pakistan. Although this disease has tormented people for ages causing untold suffering, disability, and consequent economic losses, it did not get adequate attention from the world community until recent years. The relatively low priority given to the disease could possibly be due to the fact that the disease hardly causes death and is prevalent mostly among the rural poor in remote areas It also happens to be the only human infection which is exclusively transmitted through drinking water. Eradication of this disease has been adopted as a goal for the International Drinking Water Supply and Sanitation Decade (IDWSSD) 1981-1990.

The disease is caused by the adult female guinea worm, a nematode "Dracunculus medinensis". It measures 60 cm to 100 cm in length and 1.5 mm to 1 7 mm in diameter; is milky white in colour and looks like a thick twine of thread. The female worm after migrating to the subcutaneous tissue secretes a toxin which gives rise to blister on the part of the body from where the worm emerges in the host It soon bursts forming an ulcer. When the infected person with the ulcer enters into the water, the front end of the worm is ruptured, releasing thousands of larvae into the water. Most of the emerging worms are located on the legs of the victims. Rarely, it may come out from other parts of the body Sometimes the worms may die before maturity and may be absorbed or calcified The released larvae in water are not directly infective to people The transformation of the larvae into infective stage can only occur in cyclops or water fleas commonly found in open wells, ponds or other surface water sources. When a person drinks water containing infective cyclops they are killed, the larvae come out of the dead cyclops and penetrate the gut wall of the host It takes about one year for the complete development of the female worm from the entry of the infective larvae into the human body until the adult female releases the larvae. The infection does not cause death but it is associated with considerable morbidity due to disabilities which confine the individual to his home for several weeks to as long as six months.

The prevalence of guinea worm in a locality depends upon the presence of the vector and the contamination of water supply As mentioned earlier, when an infected person with ulcer gets into a source of water, a large number of larvae are released into water which are ingested by cyclops Consumption of infected cyclops causes the infection. Thus the infection is perpetuated when persons with blisters have free access to drinking water supply and the people drink water containing cyclops. The cyclops live on organic matter and are found generally in shallow waters. Heavy rainfall in flooding wash away the cyclops, thus resulting in a low level of transmission. The disease is confined generally to areas with low rainfall and where the major source of drinking water is stagnant as in ponds and stepwells where people have easy access to reach water.

No specific treatment is available for dracunculiasis The age-old remedy is to laboriously roll out each emerging guinea worm onto a small stick, a few centimetres each day accompanied by measures to prevent secondary bacterial complications However, in the late sixties, several drugs were tested and found to hasten the expulsion of the worm.

As the infection can occur only through drinking water containing cyclops, prevention of the disease can be achieved by either protecting the drinking water from physical contact with the lesion in patients, or by preventing people from drinking water containing infected cyclops, or by freeing water from the cyclops. In the absence of protected water supply, water can be freed from cyclops by sieving through a double-layered cloth Monofilament nylon gauze has been developed with 60 to 100 pores/cm that will filter off cyclops Chemicals such as temephos are also known to be effective and safe as cyclopsicidial agents

In India

In India, a major effort to identify the extent of the problem of guinea worm infection and subsequent eradication of the disease was initiated in 1979. Based on general information at that time, it was found that there were seven endemic states with 47 districts and 728 villages affected. Subsequently, to get more accurate information, active "searches" were organized in all districts of the seven endemic states for the detection of guinea worm affected villages. Based on information collected through these "searches", 83 districts and 12, 081 villages reported cases of guinea worm disease as of April 1983. Total population of the affected villages at that time was about 12.8 million The endemic states were Andhra

Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu. Of these, the state of Rajasthan was worst affected having over 6000 affected villages with a total population of over 6 million. Economic losses caused due to this are stated to be enormous. The disease is prevalent exclusively among rural poor and the maximum incidence during the summer months which is the season of intensive agricultural activity. Approximately 7.0 million man-days are lost annually due to this disease in India according to an estimate prepared in 1983

The Government of India adopted a strategy for the eradication of guinea worm in the country The strategy includes (i) active case search operations, (ii) provision of safe water supply, (iii) chemical treatment of water, (iv) health education, and (v) training of personnel. The National Institute of Communicable Diseases (NICD) was made responsible for planning, monitoring and coordinating different activities implemented through a number of government agencies. A Task Force of public health experts has been constituted to review and monitor the progress of guinea worm eradication. There has been a significant reduction of guinea worm infections over the years According to the latest report of the Task Force (January 1989), of the seven endemic states, Tamil Nadu has no case of guinea worm since 1982; in the other six endemic States the total number of affected villages has come down from 12081 in 1983 to 4270 in 1988. Rajasthan continues to be the worst affected State with 2254 affected villages in 1988

UNICEF Cooperation

As a part of UNICEF cooperation with the Government of India (GOI), two districts of the State of Rajasthan were selected for intensive UNICEF assistance for an integrated project for guinea worm control, water supply, sanitation and hygiene education. Originally known as the Integrated Guinea Worm Eradication Project or IGEP, the name of the project was later changed to Integrated Sanitation, Water, Guinea Worm Control and Community Health project with the acronym "SWACH" (meaning "clean" in local language)

The project, in Banswara and Dungarpur districts in the sourthern part of Rajasthan, falls under the Plan of Operations agreed between GOI and UNICEF, 1983-1990 The Government of Sweden provided funds for the project through an agreement for "supplementar" funding. A "Plan of Action" for the project was jointly prepared by the State Government of Rajasthan and UNICEF. Implementation of the project started in 1986

The project covers 8800 square kilometres in two districts and has a population of about 1 8 million. Nearly three-fourths of the population is below the poverty line and infant mortality rate is well above the national average The literacy rate is extremely low and is practically non existent for women. Incidence of guinea worm disease is very high and these two districts accounted for 27% of all the affected villages in Rajasthan or about 11% of all the guinea worm affected villages in the entire country. The "Step-wells" (large diametre open dug wells with steps to allow people to walk right down to water) have been major source of transmission of the guinea worm disease in the areas.

As mentioned in the Project's Plan of Action the aims of the Project are :

- to improve the quality of life and socio-economic conditions of the people with particular reference to women and children;
- to promote community involvement and self reliance in the planning, implementation and maintenance of drinking water supply;
- to promote and sustain health behaviour change among the target population,
- to lower the incidence of waterborne disease.

To further these aims, the objectives of the Project are·

- to assist villages in upgrading existing unsafe water sources such as stepwells.
- to provide new tubewells fitted with handpumps
- to strengthen and further improve the operation and maintenance system for handpumps and converted stepwells
- to establish a process of continuous health education in the project areas
- to improve domestic and environmental sanitation in order to reduce the incidence of guinea worm, infestation.

The basic approach of the project is to increase the capacity of the villages to improve their own health situation and general well-being through integrated interventions in the fields of drinking water supply, health education and sanitation Thus, the Project strategy includes:

Bottom-up approach : All interventions must be planned and executed with the active participation and consent of the community, and in particular the women.

Integration : While the actual interventions will be carried out by a number of different organisations, the Project will have the responsibility to ensure that these interventions are both coordinated and integrated at the village level

Capacity building : In building up the project momentum, it is necessary to ensure that the physical targets set for the initial period of implementation allows a buildup of skills, methods and organizational capacity of the Project as well as of participating agencies.

Besides the traditional elements of public health engineering measures such as water supply installations and drainage, hygiene and disposal, the Project will concentrate on health and hygiene education through schools and adult and non-formal education centres, health instituions and anganwadi centres. To carry out this Project, it is necessary to involve all possible change agents at the village level such as teachers, village health guides, paramedical workers traditional birth attendants etc However, the core person to initate and mobilize support for the project activities in the village will be the "social animator", the village contact person to be identified, trained and continuously supported by the Project itself

Major components of the project include ·

- Conversion of stepwells into draw wells
- Installation of tubewells fitted with handpumps
- Maintenance of handpumps
- Construction of washing platforms and cattle troughs
- Drainage improvement of existing handpumps
- Construction of latrines
- Education of children in respect of health, hygiene and sanitation
- Awareness generation through adult education centres and nonformal education
- Intensive awareness campaign
- Organization of preventive and curative camps and
- Distribution of double-coloured filter cloths

The project is jointly financed by the state Government of Rajasthan and UNICEF. Total estimated cost of the project for the four-year period (1986-1990) in Indian Rupees is 12 crore (US$ 8 million). UNICEF will provide about 60% of the total costs which will come mainly in the form of drilling equipment, handpump and accessories, conversion of stepwells, transport and training of personnel. The Government of Rajasthan will provide the balance 40% in the form of drilling costs, personnel costs and part of costs for stepwell conversion. A project team has been set up with about 45 personnel including two UNICEF professional staff members providing technical and management support. The Government of Sweden through Swedish International Development Agency (SIDA) has provided the funds to UNICEF as "supplementary" funding.

Significant progress has been achieved since the project was launched in 1986 A team of officers from Government of India, Rajasthan, UNICEF and SIDA reviewed the progress in August 1988 and prepared a report.

Description, progress of implementation and observations on some of the major activities are mentioned in the following paragraphs

Drinking Water Supply

The drinking water supply component is intended both to further intensify the provision of new safe water sources in selected tribal habitations, and to up-grade existing unsafe sources, particularly stepwells

In the Project area, there were some 2700 stepwells used for drinking water Some of these are privately owned and are also used for irrigation purposes. These constitute the major source of guinea worm infection as well as other water-related diseases

To improve the quality of water as well as to break the infection chain of the guinea worm disease, conversion of all these stepwells into sanitary draw wells has been included in the programme.

The basis for the planning of conversion of stepwells into sanitary wells is the Search Report of the Medical and Health Department prepared in June 1985 In this Report guinea worminfested villages have been divided into the following five categories depending upon the number of guinea worm patients.

(I) Villages having more than 25 patients
(II) Villages having 10 to 24 patients
(III) Villages having 5 to 9 patients
(IV) Villages having less than 5 patients
(V) Villages having no patients presently but with incidence reported in previous 2 searches.

The initial thrust of the project was to cover all villages in Categories I, II and III of Dungarpur and Categories I, II, III and IV of Banswara District

The dewatering and cleaning of the converted stepwells were undertaken immediately after their conversion followed by chemical treatment Besides, Cambusia, Barbs Rosbora or other suitable species of fish would be introduced for cyclop control in some wells after ascertaining community acceptance

By August 1988, over 2900 stepwells were converted which exceeded the original traget set for the Project.

The projected number of handpumps to be installed by the Project would be 4000. Looking at the greater incidence of guinea worm infection in Dungarpur district, 2400 handpumps would be installed in Dungarpur district and 1600 in Banswara district The following criteria were adopted in location of handpumps :

(a) Hydrageologically feasible sites near the converted stewell
(b) Village/hamlets not having any safe drinking water source.
(c) Health centres, schools and other coummunity places not having any safe source of water

By August 1988, a total of 2222 bore-holes were drilled of which 1990 were successful in producing water. A total of 1715 India Mark II handpumps have been installed in these successful bore-holes. An improved version of Indiar Mark II handpumps with VLOM (Village Level Operation and Maintenance) features will be increasingly used for the project.

A credible and efficient maintenance system is a necessary

part of any water supply component. It had provision of traning additional personnel (200) for operation and maintenance of the 4000 additional handpumps planned to be installed under the Project and imparting refresher training to handpump mechanics already trained (140), during a 6-month period; as well as continuing their training periodically. A norm of one mechanic for 20-30 handpumps has been planned. The training also included health and hygiene education, domestic and extension methods. The project has sucessfully tried out training of a group of women handpump mechanics More women are expected to be trained to take up the tasks of handpump maintenance

Environmental Sanitation

This component covers such interventions as are aimed at minimizing the possible negative side effects of improved water supply (drainage, soakpits, sewage etc) as well as interventions aimed at improving existing unsanitary conditions (cattle troughs, washing platforms, public latrines etc.)

The project envisaged construction of 1000 washing platforms and 1000 cattle troughs near those sanitary wells and handpumps where washing takes place and where cattle come for drinking water. So far, 447 washing platforms and 1015 cattle troughs have been constructed

The drainage system of existing handpumps is not satisfactory and constitutes a new health hazard There is, therefore, a need for improving the drainage system by repairs of platforms, construction of drainage channels and soakpits at feasible sites, plantation of water absorbing species like eucalyptus, bamboo, gulmohar, and/or encouraging the use of spill water for kitchen gardens near the handpumps The success of this work will depend upon the community awareness about the improved water disposal habits. In all, 3000 places with handpumps will be taken up for drainage improvement work, of which 2811 have already been completed by August 1988 The project has also introduced planting of fruit trees and other plants at the end of the drain leading from the platform

Latrines

Most schools, health institutions, community centres and private houses do not have sanitary latrines at present It has been planned to construct 500 latrines in these institutions The latrines in this project would also act as demonstration units supplementing the training in improved health and sanitary habits at these institutions as well as act as models for individuals to construct latrines in or next to their own houses This activity was taken up at a relatively later date and consequently the progress has been rather slow A total of 48 latrines have so far been completed

Ultimate success of this project is largely dependent on an effective health education Unfortunately, preventive health activities, including health education is the weakest point of the existing primary health care system

While children can in principle be reached through primary schools, adults and particulary women can only be reached through intensive dialogues at the village level, through methods and approacnes already being successfully used in some other programmes in the State.

The school-going children are being given education through their teachers, in health, hygiene of guinea worm infection The school teachers have been given posters, pamphlets and teaching material for this purpose

Most people in the Project area, both adults and children, are deprived of formal schooling The message of the Project is being imparted through the adult education system, which aims at reaching the majority of adults who are illiterate or possess a minimum functional literacy

Further, health and hygiene education are being imparted to children in the non-formal education centres who are unable to attend formal schools due to distance, unsuitable timings of the school hours or who are dropouts because of inappropriate content of the curricula as regards their life situation, non-attendance of teachers, etc

Awareness Campaign

In order to initiate contact between the villages and the Project, identify and later support the social animators, as well as to explain the objectives and approach of the Project, Village Contact Teams (VCT) have been created in each village These teams are responsible for organizing intensive promotion campaigns, including cultural programmes and informal group discussions in each village covered by the Project

Each VCT consists of five persons including the Village Level Worker and two women social animators During their first visit to a village they also collect relevant basic information about health, water and sanitation Each team was provided with a simple demonstration kit (i e magnifying glass, double-coloured filter cloth, posters and photographs, folding blackboard made of cloth etc.) This innovative approach of person-to-person contact type of communication was found to be very effective These campaigns were organized to reach a maximum number of villages in a coordinated fashion within a short time period In the campaigns, a large number of teams travel on foot, hence these were called "Padyatra" (or journey by foot, similar to some well known political and social movements in India) So far, two such campaigns have been successfully conducted in the project area

For treating guinea worm-infested persons, preventive and curative camps have been organized in those villages where incidence of guinea worm is relatively high. In these camps, curative measures are carried out, such as extraction of guinea worm by a trained team

of practitioners of traditional medicine. The patients are also oriented on how to avoid guinea worm infections and how to improve their hygiene and sanitation practices. A total of 170 such camps were originally planned to be held during the project period. In view of the success and further needs, a total of 407 camps have so far been held which treated 9447 patients suffering from guinea worm disease.

The straining of water by double-coloured (double layered with different colour on either side) filter cloth is an effective way of separating cyclops from water. It was, therefore, proposed to distribute 120 000 double-coloured filter cloth in the project area. All these filters are planned to be produced by local women in cooperation with NGOs. Therefore, it was expected that there would be income generation among the women whose active participation would be ensured. Twice a month, local women gather by tradition in this area for religious purposes. During these occasions, filters are distributed along with health education and orientation. Over 77000 filter cloth has been distributed.

Community Participation

At all stages of the project implementation, the views and active participation of the community was constantly kept in the forefront. For establishing contact point within the community itself, the project aimed at having "cluster" of villages. The social animator, supported and encouraged by VCT, provided an organic link between the project and the community. Their functions are:

- to mobilize the women and assist in articulating their needs and interests with respect to project activity;
- to reinforce the knowledge of health and sanitation through personal contacts and dialogues; and
- to assist the women/beneficiaries in deciding the site for new handpumps.

Throughout the project organization, support to the social animators was given top priority, as they constituted the most critical point for the project momentum as a whole. So far, 122 women have been trained as social animators. They have actively participated in a number of education and motivational activities through close and continuous contacts with the families. One of their initial activities has been to motivate and organize village women to improve sanitary conditions around the handpumps and to plant fruit trees at the end of the drains. Each animator works with five to seven villages with a population of 4000 to 5000.

Impact

An impact assessment of the project was carried out in September-October 1988, two years after launching the project. An independent research group carried out a study in twenty randomly selected villages of the two project districts. "Participatory observation" and "enquiry methods" as per pretested schedules were followed to carry out a "door-to-door" survey. The objective of the study was to find out (a) change in the incidence of guinea worm and other common waterborne diseases, (b) change in the behaviour of villagers as regards to collection, storage and consumption of safe drinking water, and (c) knowledge and practices of the people in respect of the use of safe water and domestic and environmental sanitation.

There have been some very useful and interesting findings of the study indicating some trends in respect of impact of the intervention measures carried out through the project. Some of the major findings are as follows:

A marked reduction in the incidence of guinea worm disease has been observed. There has been a total reduction of incidence by about 55% (92 cases in one year from the date of the survey compared to 205 cases in 1985). The reduction in the villages of Banswara has been more (about 75%) than that in the villages of Dungarpur district (about 35%), as found from the study.

There had been a significant increase in the number of handpumps. Over 63% of the households were using handpumps at the time of the survey, compared to only about 8.6% before launching the project. The increase was more for Dungarpur village (3.8% to 62 9%) in comparision to that of Banswara (14.9% to 64.5%).

On the other hand, there has been a reduction in the use of stepwells with only 10% of the households using stepwells compared to over 50% before the project. However, the reduction was less for the villages in Dungarpur (58.5% to 15%) than Banswara (39% to 3.4%).

This increasing trend in stepwell users was partly due to rise in the number of handpumps but mainly because of increased awareness of people, as there had been a 7.4 times increase in handpump users against only 0.7 times the increase in number of handpumps.

The draft report on the study mentioned that the improved pattern of use of drinking water source fairly correlates with the decreased incidence of guinea worm disease in villages of both the districts and this also explains why the reduction was more in Banswara as compared to Dungarpur.

The study also indicates remarkably high level of knowledge and attitude of the people in respect of source of safe water and the relationship between diseases and safe water.

Use of handpump as the best

- source of drinking water (89%)
- Transmission of guinea worm disease through unsafe water from stepwells, ponds and tanks (83.8%).
- Place of defecation to be away from the drinking water source (97 6%)
- Regular chlorination of wells (73.4%)
- Straining of water (97 6%) with clean cloth (99 8%)
- Cleaning (99%) and covering (97.6%) of pots for storage of water, and

Measures to keep drinking water source clean and sanitary by fencing of wells (91%), proper drainage around the water source (76 6%), not allowing persons to enter the water source (78%).

But the knowledge was inadequate in relation to other common waterborne diseases, sanitary latrines as appropriate place for defecation, use of double layered cloth for straining and its use from one side, use of strained water for cleaning the storage pot during transport.

The study also indicated gaps to varying degrees between the knowledge and actual practice The gaps indicate that inspite of knowing the positive value about the particular habit, the same was not practised by a percentage of the respondents. Thus, the gap was 28.2% in regard to the use of handpumps Similarly, there were differences in covering of water storage pots (32.8%), straining of water 24.2%), cleanliness of water storage pots (19%) and sanitary latrines as place for defecation (16 8%).

The study concludes that there has been substantial impact of the project in terms of reduction in the incidence of waterborne diseases; change in behaviour of villages in regard to collection, storage and consumption of safe drinking water; and improvement in their knowledge on many aspects of water, domestic and environmental sanitation The report on the study also recommends continuation of various awareness, educational and motivational techniques to reduce and ultimately overcome the gaps between the knowledge

Based on initial positive indications, UNICEF agreed to expand the SWACH activities to a third district of Udaipur in Rajasthan Additional funding was made available by SIDA A separate Plan of Action has been prepared for 1988-1992 Implementation has started in 1988 through an expansion of the SWACH project team

Preliminary actions are also being taken to expand the poject to the guinea worm affected districts of the State of Madhya Pradesh and the remaining guinea worm affected districts in Rajasthan. UNICEF will, thus, continue to povide close support to the Government of India until this deadly scourge is finally eliminated from the face of the country.

The author is Senior Programme Officer, UNICEF

Do You Know

EIGHTY per cent of all disease in developing countries is related to poor drinking water and unsanitary conditions

Dy the year 2000, global consumption of water will be ten *times what it was in 1900. Irrigation* lowers water tables, increasing pressure on both rural and urban supplies of this finite resource. The crisis can already be seen in developing countries, on the Nile, in Bangaladesh and in the Sudan.

In over half the households in developing countries, someone, usually a woman must carry every derop of water in a large container over long distrances from its source This burden threatens health and lessens time available for producing income and tending children

For all that was done int he 1980s to bring clean water and sanitation to the world's poorest countries, there are still 1 2 billion people lacking these basic needs. In many countries, population has grown faster than water has been pumped, cleaned or protected. New approaches are needed. □

IDWSSD : The Decade Of The Handpump

Maggie Black

THE International Drinking Water Supply and Sanitation Decade IDWSSD - even the initials flow like a muddy stream, not like the crystal drop on the Decade emblem This was the UN Decade with an impossible title But now it's over, that could be remedied

One item in the Public Health Engineer's workshop stole the show during 1981-1990 the handpump This modest piece of equipment, designed at least 3,000 years ago to help lift water from deep underground, has made an astonishing contemporary comeback. In a very real way, the IDWSSD - in its efforts to bring "Clean water to all"- has been the decade of the Handpump.

A decade or so ago, handpump for distant rural communities tended to be seen by the grand masters of pipes and drains as the preoccupation of the missionary, the humanitarian and the amateur mechanic who liked tinkering around with bits of machinery and calling his product "appropriate technology" Since 1981, that has all changed.

Now, handpumps are to be found not just in a handful of countries such as India and Bangladesh which began their handpump programmes in the early 1970s. In communities all over the developing world, the familiar clank-clank of the pump handle and the soft rattle of piston and coupling rods have become as familiar on the morning and everning air as the birds waking or the frogs complaining before going off to bed

A Blessing

On village paths and in the corners of urban neighbourhoods, women can be seen walking with that special straight-backed grace, to and from the pump with their pots, buckets and containers balanced on their heads For them, the Decade of the handpump has brought a blessing and a relief from hours of drudgery trailing to the stream or dirty pond; a safe supply of water from a pump close to home In India alone, over one million pumps have been installed

Back in the offices of departments of engineering and in the international water and sanitation community, the last ten years have seen technicians designing and improving handpumps for all hydrogeological environments. In the industrial sector, manufacturers have taken up their designs, and sold their products all over the world. Economic planners have promoted handpump use, and project managers experimented with systems for their repair and maintenance

Health educators have extolled the value of handpumps, the protection safe water affords against diarrhoeal disease and afflictions which affect millions, such as the dreaded guinea worm Truly, the handpump has become the centrepiece of a whole new approach to meeting a basic need for human existence, a water supply people can depend upon and the chance to introduce better hygiene into their homes

Although the UN Development Programme, the World Bank, and many other aid-giving organizations now place the handpump squarely in the forefront of low-cost technological solutions to water supply needs UNICEF can justifiably claim to have been in the vanguard. In the early 1970's in the wake of drought in the Indian states of Bihar and Andhra Pradesh and catastrophic floods in what was then East Pakistan, UNICEF offered support to help desperate village communities solve their water supply problems In India, they used the new percussion drilling rigs to penetrate hard rock, down to the water table below. In Bangladesh, new tubewells were needed to replace those silted up and polluted Handpumps brought the good water to the surface.

India Mark II

If there is one pump that exemplifies the recent regeneration of the handpump, it is the India Mark II This handpump exemplifies the long distance the humble pump has travelled. Not only has it become the standardized pump for the entire Indian rural water supply programme in hard rock areas; it has been exported all over the world, particularly to Africa and to some countries in Latin America, where its cheapness and durability have recommended its deployment More than 40 Indian companies are now registered to manufacture the India Mark II according to criteria established by the Indian Standards Isnstitute. Quality checks are carried out with assistance from UNICEF

The India Mark II, which was based on design originally produced by missionary water engineers in Maharashtra, was developed as a joint enterprise by UNICEF and Indian partners, notably Richardson and Cruddas of Madras Its need was demonstrated by the discovery in 1976 that 80 per cent of the village pumps installed under the UNICEF-assisted national rural water supply programme were out

Contd. on page 32)

Eight Lessons of The Decade

Focus on Poverty: Serving the unserved

A large percentage of the world's population, generally the poor, remains unserved Reaching the poor with water and sanitation services requires special emphasis on helping them to help themselves

Building Capacity: the promotional role of goverment

There is a need for government to concentrate less on direct intervention in providing services and more on enabling public and private institutions to deliver services.

Meeting Demand : understanding what services people want and are willing to pay for

Users' perceptions of the benefits from improved sectoral services have not been well understood by sector planners There is also a lack of understanding of the household itself, its micro-environment, communications, decision-making processes, perceived needs and expectations This has led to investment in facilities that have been underutilized or that people have been unwilling to pay for, thereby undermining long-term sustainability

Sharing Costs : appropriate pricing as a means of improving sector performance

Costs are rising and so are the numbers of people to be served. Government subsidies are limited, so costs should be shared The careful pricing of services is a powerful but often poorly used tool for mobilizing financial resources providing the poor with access to services, and increasing the accountability of service providers to users It can also inhibit the wasteful use of resources

Technical Innovation : range of options to meet demand

Technological advances have greatly increased service coverage by lowering costs and permitting the matching of service levels to demand

Women : sound reasons for emphasis

A focus on the role of women, among the poor and unserved, can enhance the sustainability of basic improvements in water supply and sanitation services

Monitoring extending coverage · with achievable goals

At current rates of coverage, the prognosis for extending water and sanitation services to the unserved over the next 20 years is poor, establishing achievable targets and effective monitoring systems are instruments for enhancing efforts

Coordination : building national and international collaborative networks

The primary reason for **collaboration is to make better use of existing** resources **Collaboration starts at** the country level **and is supported** by regional and **global networks.**

Kerala RWS & Sanitation Project

Rehana Sen

The Rural Water Supply and Sanitation Project in Kerala, says the author, is a unique exercise in donor and government collaboration. In this Paper presented at the Global Consultation on Safe Water and Sanitation, she says that the project is an example of how organisations working together and sharing expertise and information with the involvement of people will ensure the success of such innovative programmes which have not lost sight of their main objective to improve the quality of life and health of rural masses.

INDIA'S southern State boasts of a long sea-coast, rivers, lagoons, copious monsoon rains green vegetation, vardant forests but paradoxically, a lack of drinking water. "Water, water everywhere", wrote the 19th century English poet Samuel Taylor Coleridge, "yet not a drop to drink". Much the same dilemma that faced The Ancient Mariner in Coleridge's celebrated peom is Kerala's problem today. It is in order to rectify this incongruous situation that the Indian Government and DANIDA, the development agency of the Danish Government have successfully launched a programme implemented by the Kerala Water Authority (KWA). The proposals were put forward in 1982. In 1989 the project was reviewed to assess the progress of the Rural Water Scheme and the Pilot Sanitation Project.

Commenting on the review of the project, Bob Boydell, Senior Engineer of the UNDP/World Bank Water and Sanitation Programme, talks of the Kerala scheme as a "unique project". "It is heartening to see different agencies collaborating towards one goal", says Boydell. "The DGIS, DANIDA and the State Government of Kerala have displayed a high degree of cooperation in pursuance of their aims". The "aims" remain better health for all, in this instance, through safer water supply and sanitation. The UN General Assembly declared the decade of the 1980s as the International Drinking Water Supply and Sanitation Decade. The goal set for governments internationally were to provide their people with clean water and adequate sanitation by 1990. While the basic structure and the methods used to achie these goals were left to individu governments, the internatio donor community was directd support these efforts with financ resources, technical know-h and better coordination of p grammes.

Technical Know-how

The Rural Water Supply initiat in Kerala serves over 2 milli people. The foreign bilateral a agencies also provide techni know-how and expert advice. T Dutch are, out of necessity, masters water management having succe fully battled, over many centuri the turbulent North Sea. Jan Spee Water Coordinator at the Ro Netherlands Embassy, NewDel has been involved with this proj for the past six years. Explai Speets : "The situation we have deal with in Kerala is differe from any other and requires completely innovative approa There are several important thin you have to take into account wh implementing a scheme like t one. The chief of these is t involvement of the people, educati them towards better health conditi and assessing with them bas like design and facilities, for examp are there standposts and har pumps or taps each for women a children to use". Speets tal glowingly of the overwhelmin positive response from the peop especially the women "Previou these people were never tak seriously. Now they are treated partners in this project".

Lars Lund, Counsellor (Develo ment) of the DANIDA Mission the Royal Danish Embassy, Ne Delhi, considers the Kerala wa project as "one of our most exciti project. It is different from a other socio-economic programm with a small but powerful st strength". With autonomo agencies involved and two differ donors it has been easy for concerned to work togeth "Bureaucracy functions the sar everywhere. We have tried streamline it towards one goal a are acting as one rather th separate donors" It does howev

admits Lund, require more efforts than envisaged, primarily because individual agreements between governments may not be totally compatible and hence administration may become difficult. But it can be inspiring to learn other ways of doing things. It also teaches us to be flexible. DGIS and DANIDA have cooperated on several issues. "Happily our policy thinking has been similar and there has been no deviation of views of the projects undertaken", says Jan Speets. "The supporting agencies are not working in isolation and it shows" he adds: "ours is not a hit and run approach. This wish to cooperate with all the parties involved helps to optimize the final results".

The implementation of the Rural Water Scheme is handled by the Kerala Water Authority. Socio-Economic units have been established to work with the Kerala Water Authority to strengthen collaboration, coordination and exchange between all involved, including the people for whom these projects are intended.

Community Participation

Even though it is people in rural areas and lower groups who suffer most from lack of clean drinking water and adequate sanitation facilities, these people are often overlooked by planners and implementors of projects, which attempt to improve living and sanitary conditions. That has been mentioned by — Ian Speets of the DGIS. The Rural Water Scheme in Kerala has community participation as one of its strategies. It was realized that unless the local people were, not only made aware of, but involved in their own welfare,such projects usually met with a minimum of success. Prior to this, experts in the field did not consider it necessary to either consult or involve the people, whom they considered lay men and hence incapable of understanding a technical project. The inevitable response to this attitude was to make people hostile and uncooperative, suspicious of any move that, however positive, they believed was being forced on them.

In Kerala, which prides itself on being the first State in India to achieve 100% literacy, the population is heterogeneous. These two characteristics join together to make the people politically conscious which is why the grass-roots approach works well The rural community, when approached, was amenable to suggestions of plans to improve their water supply, sanitation and environmental conditions and were enthusiastic in lending support to such a scheme The agencies involved placed special emphasis on the involvement of women "Women play a crucial role in the home and thus in the community", emphasizes Jan Speets. Not only do they collect and distribute water for household use, but they are instrumental in moulding a family's thoughts and ideas. Obvious spin-offs of a rural water scheme would be educational and health activities and sanitation Educating a community towards better health must, thus, begin with women.

To facilitate/streamline the scheme the KWA has bifurcated Kerala into two major regions Each region is further divided into district-level work which include the village panchayat Seventy three panchayats are involved in this scheme and six thousand employees ae working to implement it In such a large venture, costs are understandably high. Besides salaries paid to the employees, a great deal of research and technical expertise goes into identifying sources of water Following this there are the expenses of processing and pumping the water from source to a handy outlet. electricity charges, construction of reservoirs and funds needed for necessary repairs and new construction like wells, residences for employees and officers.

Per capita expenses works out to Rs. 500, or Rs. 1 for every 1000 litres. Each year the Kerala Water Authority spends Rs. 0.50 crores on water supply and sanitation schemes. Government allocation for water supply, loans from financial institutions like the Life Insurance Corporation, bilateral assistance from the Danish and Dutch governments and water charges from the public are sources of finance. Besides, to cut costs the emphasis is on low-cost technology and encouragement of the participation of local residents in developmental activities through either labour, or in kind.

Implementation of the scheme begins at the grassroots level Each region is divided into wards with approximately 8,000 to 10,000 people per ward Ward Water Committees consist of members elected from within the villages, since they are familiar with the area and feel the needs of the residents. Their guidance is crucial in the siting of standposts, community taps and the construction and maintenance of latrines. "It is then that KWA and the donors offer technical advice on the pipes, wells, intake, etc," says Lars Lund. "It is this working together that makes the joint venture both complicated and challenging and at the same time also very satisfying"

Training manuals for members of Ward Water Committees have been brought out They clarify not only what the programme aims to achieve, but also identify methods of community involvement. The basic goal is to provide drinking water facilities to suit the need of the community by involving the community at all stages of planning and implementation. Previously in such projects, the focus was on technical issues, like design construction and maintenance, involving only engineers and technicians. During the decade it has been learnt that community-based water supply systems work better than centrally administered ones. It tends to ensure respect for social and cultural standards of the area for the success of a programme.

The Rural Water Scheme ensures that the people are educated about awareness of the need for pure water. This understanding on their part is essential to ensure their support for the protection of water sources. Each panchayat is advised on regular chlorination of wells already in existence. For new wells that need to be dug or bored, certain specific guidelines have been laid down to ensure the purity of water. Implementation of these guidelines is carried out under the supervision of the SEUs. In the construction of new wells a distance of at least 15 metres has been retained between the site selected and public latrines, compost heaps and animal refuse. A protective wall is built round the well and a concrete platform constructed with drainage provision for run-off water. It has been ascertained that ideally a pump should be used to lift well water, but where this is not feasible a single set of ropes should be used. Creating awareness of their civic duties has to be part of this programme to ensure that the community does not use the area to bathe either themselves or wash clothers and animals near the well.

Wells continue to remain the age-old source of water they always have been. But the lower income groups in a community which does not have access to individual household taps now enjoy the benefits of public standposts and community taps. Public standposts have been fixed in areas with scarcity of available water. The water runs through a purification process before it reaches the public. "To meet costs", says Lars Lund, "it is essential that a public standpost benefit at least 20 households, that is 200 people". Costs for this are borne by local self-governing bodies which pay from Rs. 1000 to Rs. 1500 for each tap. A panchayat can have as many as 100 taps and foot a bill of Rs. 1 lakh to Rs. 1.5 lakh paid to the Kerala Water Authority.

Community taps run on the same principle but service a smaller section of people. 8 to 10 families apply for and pay the sum of Rs. 7 50 per year per household for the water collected from these taps. High and middle income groups now have the facility of private household connections and are required to pay an installtion charge of Rs. 2000 besides monthly water charges.

Mass Awareness

Outside the core water scheme, but connected to it, is the emphasis placed on education of the people in health and environmental sanitation. The seven members elected to the Ward Water Committee are instrumental in ensuring safe drinking water and consequently better health. People are instructed to collect water only from the safe sources already identified. Water for househo use must be stored proper protected, and if used for drinki boiled and cooled before use.

Individual attendants are no positioned at standposts to ensu that there is no wastage, no grow of vegetation around the area a see to it that drains are clean regularly to prevent their cloggi and drinking water used speci cally for that purpose. The Wa Water Committee has the additior responsibility of identifying fau equipment like handpumps a ensuring either their spee repair or replacement. At stages in the progress of t project, the SEUs assess t function and achievements of t scheme

The Rural Water Supply a Sanitation Project in Kerala is unique exercise in donor a government collaboration T progress of the scheme shows hc organizations working togeth pooling resources, sharing exp tise and information together wi the involvement of concern individuals will ensure the succe of such innovative progamm which have not lost sight of the original objective — to improve tl quality of life and health of tl rural population, especially tl poor.

(Contd from page 7)

action on the *demand side* making people aware of safe water, water-handling practices, putting community based maintenance systems in place and ensuring sanitation without which this investment does not generate adequate returns. This necessitates a reorganisation of institutional structures. These are the major challenges for the nineties involving a certain de-bureaucratization of the sector and greater involvement of people through democratically elected political structures and private effort in general Community mobilisation cannot take place unless the community takes charge of the sector and makes decisions. The Rural Water Supply sector in India as it moves from the decade of the eighties to the decade of the nineties is moving over from an infrastructure-creation phase to a consolidation phase. The latter needs people and people's institutions as much as hardwa and monetary resources. If tl eighties were a decade of pum and pipes in the sector, the nineti will be more a decade of collecti human effort. To harness peopl resources effectively would be tl major challenge before tl planners of the new decade.

Based on Papers presented the Global Consultatio

Water As A Catalyst For Change— The Jhabua Model

Veenu Sandal

THERE are villages like Ranapur in Jhabua district of Madhya Pradesh, where acute scarcity of water led to shortage of brides In Jhabua, half-clad Bhil tribals, armed with bows and arrows have forced drilling teams to drill tube wells and install hand-pumps at unsurveyed, unmarked sites and they have also vociferously disagreed with trained engineers and proceeded to pool their labour and dug their own wells. In village after village, tribals also cooperated to help eradicate the debilitating water-borne scourge of guinea-worm In many villages, local elections are won and lost on the issue of water. Today, potable water is a status symbol in drought-hit Jhabua, where agriculture and cattle rearing are chief occupations

Over the decade, practically each succeeding summer has ushered in a host of problems in large hilly tracts of denuded land Short of vegetation, they remain grim and desolate through the hot summer months when temperature soars to 44 degrees celsius The forested areas in Jhabua offer more hope, but are also beset by water shortages and rapidly falling water tables. Monsoon failures, the varied topography and the traditional way of life of the tribal population (approximately 7,95,168) in Jhabua district (6,792 sq kms) have combined to pose a supreme challenge to technological efforts to provide adequate water

There is a fairly extensive network of motorable roads between the villages in Jhabua, Each village is divided into hamlets, called phaliyas, of 10-12 or more families. The scattered composition of the village of Jhabua renders inadequate the generally adequate government practice of installing a hand-pump for every 250 people At times, many of the phaliyas move away and settle at a new place, thus compounding the challenge of providing safe drinking water to all Other factors like low literacy (10 99 per cent), rigid cultural practices, low income levels also cast a long dark shadow on the struggle to provide water

Integrated Scheme

Realizing the complexities of the situation, the Government of India launched a bold new experiment in Jhabua in the latter half of the 'eighties ' The approach was to be an integrated, inter-sectoral one, wherein the hardware and human resources of the Public Health Engineering Department, Rural Engineering Service, the Forest Department, the Irrigation Depatment, the Space Application Centre, the Central Ground Water Board and other agencies and services like health would all be brought into the picture, under the aegis of the Drinking Water Technology Mission with an estimated cost of Rs 739 67 lakhs

To evaluate how far this pioneering experiment could succeed in backward, industrially underdeveloped, reputedly unmanagable, chronically problem-riddled district like Jhabua, a case study of Jhabua district specially of Jiwania, Somai and Ambua villages reveals that there is action and movement and flow in the projects.

At Jiwania, in Bhabra block, a two-hour drive from Jhabua town, the successful application of low-cost technology has provided not only water, but also indicators of a certain measure of prosperity, besides arresting the changing life-partners that could, in the long run, have proved detrimental to the future of the tribals in the area.

No longer, the land around Jiwania becomes dry parched and unproductive, unable to sustain either crops for grazing as the tubewells were drilled and hand-pumps brought water. Tension has eased during summer and fewer men and women migrated in search of work.

Different Summer

During 1990, there was water from the hand-pumps all through the summer as these were recharged. Vesta, a 45 year old tribal is now planning to buy more cows, sheep and goats. "The hot months without water break our backs, and we have to limit our cattle-heads", he disclosed. But now we

can plan to invest whatever little we have in more goats and cows, which are a dependable source of income In the past, because adequate water supply was uncertain, we had to undertake distress sale of cattle", he said.

While a certain amount of contentment prevails at Jiwania, the heat of argument still hangs over the village of Sarangi in Petlawad block, more than 140 kilometres from Jiwania. The trouble began in the early eighties when two tubewells, which were supplying water to the 2800 strong population of Sarangi went dry one summer. In an attempt to recharge one of the tubewells and the area around it, a stop-dam was erected by the Irrigation Department at a cost of Rs. 5 lakhs under the Water Technology Mission Programme across a seasonal nullah near Sarangi.

The hopes of the local people were belied when water in the stop-dam dried up and failed to recharge the tubewell adequately. The agitated tribals gheraoed Gobind Singh, the Sarpanch, who had made the provision of water a major election plank in 1989. "I will see to it that water is provided by digging a well ourselves, if necessary", he had declared But the villagers were unconvinced. They persisted with their efforts, got Rs. 25,000 released under Jawahar Rozgar Yojana, and began digging a well eight feet in diameter. They gave up after digging more than 20 feet down and found no water. The Sarpanch lost face and the villagers became sullen, ready to resort to violence and stone-throwing.

Calm was restored just before peak summer time, when two new tubewells drilled by the Public Health Engineering Department at a cost of Rs. 3.75 lakhs in what appears to be good, natural recharge zone at Umedpura, three kilometres from Sarangi, began pumping water to the village under the Technology Mission Programme. Why did water become such an important, intense issue at Sarangi ?

The basic need for water and the politics of the case apart, the women at Sarangi are an intelligent articulate lot They were not prepared to return to the drudgery of fetching water from long distances to tide over the summer. "It would", as 35-year old Revathi said, "lower my family's prestige. It would lower our community's prestige. Why should I fetch water from a longer way off, when there is provision that it should be available at a nearby spot ?"

At Somai village in Ranpur block, about 110 kilometres away, water consciousness has brought freedom from the dreaded guinea-worm cycle. At Somai, as in villages across the length and breadth of Jhabua, all identified step-wells, both government and private, have been converted into draw-wells wherever possible or entry has been blocked to the offending step wells. A search is on for stray ones that may have escaped identification. Dug-wells are being chemically treated all over the district to eliminate the recurrence of cyclops. The tribals are now aware that if forced by unforeseen circumstances to drink water from a pond or shallow open well, they must filter it through double cloth filters.

The importance and value of filtering water has been brought home to the tribals most emphatically and vividly at Somai and other villages. I saw households carefully filtering even the hand-pump water By the end of 1989, 11,700 double cloth filters had been distributed in Jhabua by the health authorities and they are to be replenished from time to time.

Communication strategy

The hazards of unsafe drinking water and the benefits of safe drinking water were carried from village to village through an unusual communication strategy in a remarkably short period. The Nehru Yuvak Kendra at Jhabua developed and incorporated water-related themes and messages into folk plays and funded a tribal folk drama team, called "Girdhar and Party" to travel deep into the interior of Jhabua Colourfully attired, highly mobile and unencumbered by stage props, the artistes were able to reach out to an entire scattered village through a single, open air performance Messages were interspersed with comic episodes and the lively performances of the party became an effective, culturally acceptable medium of communication. Health workers reinforced the message at every opportunity. Today there are no known cases of guinea-worm anywhere in Jhabua.

In Jhabua, bunding is being undertaken to harvest rain water old structures like tanks and earthen check-dams have been revitalized, recharge structures are being set up; fluorosis zones are being identified; satellite imagery is being used to locate future sites; hydrologists are busy studying surveys, while others are surveying unserved phaliyas, afforestation is being taken up More than 30 integrated water-schemes are already in operation in Jhabua schemes that are providing direct employment.

The tribals are no longer content with a hand-pump in every village Conscious of their rights, they are now demanding a hand-pump in every phaliya, never mind if it consits of only five average sized families They are not just demanding hand-pumps, they are also expecting "quick" service for rectifying any mechanical defects that may develop in hand-pumps Along with hand-pumps and their maintenance, they are demanding water troughs for cattle.

Obviously, the last few years have been trend-setters for Jhabua Many questions have been answered. But an almost equal number of questions have been raised. Take the example of Kishanpura and Geduli villages. Here, a sum of over Rs 3.76 lakhs was spent to provide drinking water to a combined, total popula-

(Contd. on page 34)

Oil Crisis- Options For India

K.V. Raju

The author looks at the emerging oil scenario in India in the context of the developments in the Gulf region. He asserts that the time has come to give up our over-dependence on imports and go in for possible alternatives.

PETROLEUM which along with coal and power, constitutes the principal source of commercial energy in India, is a commodity in which it is not richly endowed The country is not self-sufficient in petroleum products and about 30 per cent to 40 per cent of our requirement is being met by imports This causes great strain in our foreign exchange reserves. Further, oil reserves in the world are not expected to last indefinitely

Domestic production of oil has increased considerably over the last two decades From 6 8 million tonnes in 1970-71, crude oil production went up to 32 million tonnes in 1988-89 With the advent of Bombay High, more than four fold increase in crude output from the on - shore and off - shore areas was recorded during 1971-85. Crude oil production was 6 8 million tonnes in 1970-71, the share of Assam being 3.36 million tonnes and that of Gujarat 3.45 million tonnes. In 1985-86, the total output was 30.20 million tonnes, Bombay High accounting for 20.10 million tonnes of off-shore and 9 40 million tonnes of on-shore production. It appears that the dynamism in domestic crude output has of late given way to some kind of stagnation. Actual production of crude oil in the past three years has been short of the annual target envisaged in the Seventh Plan document In 1989-90, India produced 32 million tonnes of oil from its three main production areas viz., Bombay High, Ankleshwar and Assam It is to be noted that out of the total output from the three major oil fields, Bombay High's contribution was as high as 68.75 per cent in 1989-90 There is increasing fear among oil experts that the over-utilisation of the existing wells may seriously jeopardise the oil fields in the future

Consumption

Consumption of petroleum products upto middle of the century was not high, in spite of ample availability and low prices Consumption of petroleum products increased considerably over the last two decades. The aggregate demand has continued to rise despite an unprecedented rise in prices for petroleum products after 1973-74 From 17 9 million tonnes in 1970-71, consumption of petroleum products increased to 49.76 million tonnes in 1988-89 Developments in the transport sector, industrial sector and agricultural sector were the major reasons for increased consumption of petroleum products.

The average growth in petroleum consumption during the period 1971-85 was 7 1 per cent What is especially distressing is the galloping rate of consumption of petroleum products with no noticeable trend towards efficiency in the utilisation of alternative source of energy anywhere possible Between 1980-81 and 1988-89, consumption of petroleum products shot up by 6 13 per cent per annum (compound)

In spite of considerable increase in domestic crude output and high priority accorded to exploration of oil there has been a high supply demand gap, made good by imports

Table 1

Commodity Balance of Petroleum and Petroleum Products

(Million Tonnes)

Items	*1970-71*	*1980-81*	*1984-85*	*1988-89*
Crude				
Domestic production	6 8	10 5	29 0	32 00
Refinery throughput	18 4	25 8	35 6	48.80
Imports (Net)	11 70	16 20	7 20	17.80
Products				
Domestic consumption of which	17 9	30 9	38 8	49.8
(a) Naphtha	0 90	2.30	3 10	3.30
(b) Kerosene	3 30	4 20	6 00	7.70
(c) High speed diesel	3 80	10.30	13 70	18.70
(d) Fuel oils	4 70	7.50	7 90	8.40
Domestic production of which	17 10	24 10	33 20	46.40
(a) Naphtha	1 20	2 10	3 50	5.40
(b) Kerosene	2 90	2 40	3 40	5.20
(c) High Speed diesel	3 80	7 40	11.60	16.70
(d) Fuel oils	4 10	6 10	7 90	8.90
Imports (Net)	0 80	7 30	5.20	4.20

Provisional
Excluding refinery fuel consumption
Source: Economic Survey, 1989-90

of both petroleum, crude and refined products. From 11.7 million tonnes in 1970-71, imports (net) of crude increased to 17.80 million tonnes in 1988-89. In 1989-90, total imports of petroleum products stood at 19.90 million tonnes

U.S.S.R. is the single largest producer of oil in the world followed by U.S.A. and Saudi Arabia. In 1989 the Soviet Union produced 12.48 million barrels of oil per day. The United States and Saudi Arabia produced 9.18 and 5.26 million barrels. Saudi Arabia is having the largest reserves of oil in the world. In 1989 its reserves were estimated to be 170 billion barrels. Iraq is having the second largest oil reserves in the world followed by U.A.E. and Iran. OPEC, the Organisation of Petroleum Exporting Countries, is one of he leading producers and exporters of oil in the world. Almost 36 per cent of the world output of oil was from OPEC in 1989. Majority of the non-OPEC producers are major consumers and therefore they are not major exporters of oil Iraq, Kuwait, Saudi Arabia and U.A.E. account for almost 98 per cent of the total gulf oil production. OPEC's share of world production fell from 48 per cent in 1979 to around 36 per cent in 1989 In 1980 OPEC oil earned $ 430 billion (in 1989 dollars). By last year that had fallen to $ 110 billion.

Import

India is importing about 93 per cent of its oil requirement from the gulf region Thus any problem in the gulf countries is particularly alarming for India. Iraq and Kuwait together exported 3 50 million tonnes of oil to India in 1989-90 and are contracted to supply 5 million tonnes of crude during the current year, which will come to a quarter of Indian crude oil imports. The Soviet union is also a major supplier of oil to India. An all out war in the Gulf could mean a major economic crisis for India. It is to be mentioned that import of Siberian oil is more costly because of the large transportation cost involved in it Therefore the options are Indonesia, Malaysia or Latin American countries.

Prices

The increase in oil prices due to the current Gulf crisis will have far reaching implications for India. Oil prices showed violent fluctuations during the last two decades. During the 1973 conflict in West Asia, oil prices increased alarmingly. In 1979-80, in the wake of Iran-Iraq war oil prices reached new hights The current crisis has also pushed up the oil prices During the first quarter of the current financial year India imported 7.0 million tonnes of crude oil and petrole products valued at about Rs 1 crores The average price paid India for importing crude oi estimated at $ 14.2 per barrel the current term rate of about per barrel (i.e. spot price of $ 31 barrel) India's oil imports would be over Rs. 7000 cro That is, an additional burden of 1500 crores would have to borne by the consumer. Furt there is every possibility that s rates may go upto $40 per ba This will give an additic import bill of about Rs 3 crores The oil crisis may p India to ask for another huge l from IMF and this will seriou jeopardise our debt serv capability This eventually force us to reduce imports of and this will in turn lower economic growth of the count

Table 2

Oil Producers of Asia and the World in 1989 (Output in million barrels per day and reserves in billion barrels)

Country	Output	Reserves	Country	Output	Reserves
Canada	1 72	6 80	U S S R	12 48	58 50
U S A	9 18	26 50	India	0 69	4 50
Mexico	2 88	54 10	China	2 79	23.60
Colombia	0 40	2 00	Malaysia	0 58	3 40
Ecuador*	0 29	1 40	Nigeria*	1 60	16 00
Venezuela*	1.98	58.10	Gabon*	0 22	0.90
Brazil	0 64	2 60	Indonesia*	1 40	8 30
Algeria*	1 17	8 40	Australia	0 57	1.70
Norway	1 53	11 00	Brunei	0.14	1 40
Britain	1 90	5 20	Angala	0 46	2 00
Romania	0 19	1 20	Syria	0 27	1 70
Iraq*	2 82	100.00	Qatar*	0.40	3 20
Iran*	2 86	92 90	Libya*	1 140	22 00
Kuwait *	1.60	91 90	Egypt	0 89	4 60
U.A.E.*	2 07	98.10	Saudi Arabia*	5 26	170.00
Oman	0.59	41 10			

* *OPEC Member*

Source: World Bank Atlas, I M.F., International Financial Statistics.

Alternative

The events in the Gulf points the vulnerability of depending much on oil. Moreover, oil rese in the world are limited Since 1 countries in the world especi developed nations have achie reamarkable success in conserva of energy and to a lesser exten diversifying sources of supply. H ever diversification and conserva of energy in India is far from s factory. The Government has ta some measures to effect econ in the use of petroleum produ It is to be noted that most of countries in the world increasingly relying on atomic thermal power. For a las answer to solve the problen energy the developed developing countries should together and conduct research the invention of alternative sou of energy resources. Thus, as a l term strategy Government of In should take further steps to c growth in consumption petroleum products by judici use of existing oil reser promotion and development alternative fuels and conserval of these products.

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Question Mark On The Exchange Counter

Dr. S.K. Ray

In the context of worsening BOP, the country has to address itself to the question of structural disequilibrium. It is a fundamental question, of toning up the economic firmament, than of simple export-import account. The author stresses that the priorities for growth should be properly recognised and economic development should be taken up with foresight and boldness.

THE Indian economy ever since Independence has had several reversals in the exchange counter. When realised that the health of the economy is largely reflected by the soundness of its balance of payments, recurrent or accumulated exchange account deficits cannot but give rise to serious misgivings.

With recurrent setbacks in exchange accounts and extensive borrowings abroad, a marked characteristic of Indian currency and exchange after Independence has been the mounting deficits in the balance of payments. These deficits have frequently been so gnawing and persistent as to raise the spectre of a serious exchange account disequilibrium.

This has been in the normal run of India's international trade. However, the recent Gulf crisis, which seems to be embroiling us in many ways, may hit the exchange counter in a two-pronged punch, and the economy may be very hard-hit. It has been aptly put that the raging trumoil may hit us, firstly, 'bleeding the foreign exchange reserves by hiking the oil import bill, and eventually slashing a huge chunk of NRI remittances.' Even though the authorities are putting up a brave face there can be no denial that the situation, except for a natural retrieval, may turn grim. We will analyse it further later in this article.

A growing debacle is evident on the exchange counter. This is best studied from analyses made by the Reserve Bank and the Planning Commission and the World Bank. The respective positions are reflected in Table 1 and 2.

The highlights, as observed in a CMIE analysis, are indicated below :

1. For the last few years India's balance of payments position has been deteriorating, though the deficit in 1986-87 was slightly smaller than the peak reached in 1985-86. All along increasing trade deficit have been offset by surpluses on the invisibles account. But net invisible earnings have remained within the range of Rs. 3,500 to Rs. 4,000 crores since 1981-82, while trade deficit (based on balance of payments statistics) has moved up from about Rs. 6,000 crores in 1981-82 to more than Rs. 9,000 crores in 1986-87. Net earnings on invisibles account have declined from 3 2% of GDP in 1980-81 to 1.3% in 1986-87. The remittance from abroad have stagnated of late. This is, however, partly offset rising tourism earnings. But at the same time outgo on investment income including interest payments on fareign loans is becoming lager.

The World Bank's latest projections envisage that the current account position would deteriorate from 1987-88 onwards. Here one may note that the Reserve Bank of India's actual data for 1986-87 show current account deficit of Rs. 5,513 crores, while World Bank puts the deficit for the same year at Rs. 5,[illegible] crores.

3. Under revised projections done by the Indian Planning Commission, the current account deficit is revised upward from original Rs 20,000 crores to around Rs. 23,700 crores at 1984-85 prices.

No lasting redemption for India's crisis in the balance of payments is possible unless the trade deficit drops sizeably from the current level of over Rs 9,000 crores (in 1986-87) to a manageable level of around Rs 1,000 crores. Reduction in oil imports may help, as also can a sharp cut in imports of luxury and consumption goods; but a real dent can be made only with sweeping rise in exports While cutting down imports, we should be liberal about technology transfer for rapid absorption of modern world technology.

Ever since Independence, our performance on the export front has been disappointing. We have been toting up alibis like world recession, protectionism and international currency fluctuations But these are untenable as many developing countries have done much better despite such factors Our failure in exports is largely attributable to lack of productivity and efficiency

Except for Malaysia, India has done the worst, much worse than South Korea and Hong Kong and neighbouring Pakistan

Table 1

World Bank Estimates/Projections of India's Balance of Payments : 1986-87 to 1990-91

	1986-87	*1987-88*	*1988-89*	*1989-90*	*1990-91*
		Sources of Current Account Deficit			
1. **Exports**	18202	21986	24457	26908	28166
2 Imports	24583	28333	31508	34064	36057
3 Resource balance	– 6382	– 6348	– 7051	– 7156	– 7892
4 Current account balance	– 5098	– 5276	– 6039	– 6223	– 7004

Source. Basic Statistics, Vol I 1988, CMIE

Table 2

Exports of some Asian countries

(Million US $)

Country	*Calendar Year* *1980*	*1981*	*% increase*
South Korea	17,505	21,254	21
Hong Kong	19,720	21,830	11
Pakistan	2,618	2,880	10
Singapore	19,378	20,967	8
Thailand	6,505	7,032	8
Sri Lanka	1,074	1,065	- 1
Philippines	5,741	5,655	- 2
India	8,242	7,300	- 11
Malaysia	12,958	11,198	- 14

Introspection

India's foreign exchange reserves fell sharply by Rs. 1,029 crores in 1980-81 compared to a modest drop of Rs. 56 20 crores in the previous year. This does not take into account borrowings of about Rs. 815 crores from the IMF during the year. The Annual Report for 1980-81 of the Union Finance Ministry indicates that the improvement in India's foreign exchange reserves, which was marked in 1976-77 and 1977-78, started slackening from around 1978-79. The reserves declined by Rs. 56 20 crores in 1979-80 The declining trend increased sharply in 1980-81

The analysis reflects a fast worsening situation in India's balance of payments, with a depleting surplus, and a languishing international liquidity of the rupee, compounded by imports growing much faster than exports

The situation in the eighties is distressing The trade deficit in 1981 eventually exceeded Rs 4000 crores, which the government has been forecasting, as against Rs 2,258 crores in the previous year The deficit had widened, amongst other things, due to the steep hike in the international prices of petroleum and fertilizers The deficits continued to grow in the succeeding years, as had already been forecast by the World Bank, for some of the years even beyond their estimates

The prices of petroleum and petroleum products have been playing havoc with our exchange account. Registering over 100 per cent hikes since 1979, the import bill of petroleum and petroleum product cost us more than over Rs 5,000 crores in 1980-81 against imports of only Rs. 1,678 crores in 1980-81 The position has been worsening steadily India appears to have huge potential of indigenous oil resources, but the exploitation of the same is still in its infancy As a result, it is apparent that the pressure of oil prices will continue to plague the exchange account in the forthcoming years.

The only two ways in which the situation could perhaps be salvaged would be by optimising exports, simultaneously with drastic restrictions on imports.

The realities are different Imports have been rising fast, leaving

the growth rates of exports far behind. The effect on balance of payments has been adverse; a decadence soon turned into a rolling deficit, which may ultimately lead to either a devaluation or a structural disequilibrium

In absolute terms, the total value of India's trade has risen twenty four flod since Independence. An appreciation separately for imports and exports will unravel the mysterious implications of the growth vis-a-vis balance of payments There are much more than what meet the eye

Imports : While both exports and imports have grown since Independence the growth in imports has been extremely sharp From Rs 635 crores in 1950-51 to Rs 1,635 crores in 1970-71 (two and a half times) to Rs. 13,000 crores in 1980-81 (eight times) have been increasing by leaps and bounds

There were many contributory factors. During the 'fifties and 'sixties, foodgrains and machinery contributed the bulk of our imports. In the subsequent decade, however, POL, fertilizers, edible oils and metals led the inflow As agronomy and industry picked up, imports of fertilizers, POL and metals had also peaked up, together with imports of edible oils, paper, sugar and cement.

The four-fold increase in petroleum prices, however, had taken the cake and this has grown from Rs 1,678 crores in 1977-78 to Rs 3,275 crores in 1979-80, and nearly Rs 5,120 crores in 1980-81, a 56 8 per cent rise in 1980-81 over the previous year Fertilizers (in both value and volume) had also substantially contributed to the situation

Exports : Exports, however, have not grown so fast, and their composition and content leaves scope for improvement This was due to substantially long gestation, and also because ores, raw materials and agricultural produce still retained the lion's share of our exports.

Exports thus stagnated at an annual average of around Rs 600 crores during the 'fifties and early sixties. Thereafter exports started to rise steadily and had about doubled between 1965-66 to 1972-73, and faster thereafter, to reach Rs 5145.8 crores in 1976-77 Even though the growth rate had slackened thereafter, it has again picked up in recent years

An export explosion had materialized during the late 'sixties and early' seventies There were three contributory factors .

1. A partial shift in the commodity profile from raw materials and traditional goods to finished products, processed ores and materials, and engineering goods
2. A deliberate state policy of export promotion, catalysed by the 1966 devaluation and the multinational trade covenants
3. With world trade itself having burgeoned during this period, India's (absolute) share itself had also simultaneously increased

II

Things have not been so satisfactory as are sometimes made out

A brief resume of the multifarious adverse trends will be in order

Trends Deleterious

1. Declining world share: When we reckon with the absolute growth of world trade, we find that India's share has been declining steadily. from 2 3 per cent (of the world trade) in 1950-51 to 1 04 per cent in 1960-61, to measly 0 49 per cent in 1980-81. Is the world passing us by? We do not seem to have convincing answers, and keep on toting up alibis

2. Adverse rupee-commodity ratio : Many advanced European and American countries as also other countries like Japan and Australia have been getting the better of us in trade covenants and agreements As a result we have frequently been paying more for less goods in the import account, while earning less for more goods in the export account

Certain examples may be cited :

1. **Import :** Period 1970-71 to 1979-80 , rise in unit value index from 100 (1970-71) to 272 (1976-77) and 360 (1979-80) vis-a-vis rise in quantum index from 87 to 99 to 135 respectively.

2. **Export :** Period 1954-55 to 1958-59 with base 1952-53 = 100, unit value index dropped from 98 to 93, whereas quantum index rose from 105 to108

For one thing, the value of the Indian rupee has steadily eroded in the international market, and for another, in the matter of bilateral trade covenants we have frequently been obliged to settle for less favourable terms

3. Unfavourable terms of trade : India has very frequently had unfavourable terms of trade The consequences, therefore, were also unfavourable

Here are certain examples :

1. The net terms of trade during 1954-55 to 1958-59 (base 1952-53 = 100) dropped from 110 to 101
2. This happened again during 1960-61 to 1974-75 (base 1958-59 = 100) when it dropped from 115 to 95
3. With 1968-69 = 100 as base, there was an ominous drop from 106 in 1970-71 to only 66 in 1978-80

4. Whopping deficits : The soundness of our international trade is open to serious doubts when judged on the crucibles of the balance of payments riven by gaping deficits From about a Rs 50 crores deficit in 1950-51, there has been steady annual rise, until the deficit had peaked at over Rs 1,220 crores in 1975-76 and zoomed at an (unprecedented) Rs 5,752 crores in 1981-82. Like flashes in the pan, there were short surpluses in 1972-73 (+Rs 103 crores) and 1976-77 (+ Rs 72 crores) Trends in subsequent years are not heartening. A principal contributory factor for continuing exchange deficits, apart from the dwindling international value of the rupee and adverse terms of

trade, has been an obsession with the age-old commodity-composition of our exports and imports.

5. Commodity composition: Even in the mid-eighties, our exports continue to substantially comprise unprocessed and processed ores and minerals, primary goods and agricultural and industrial raw materials.

On the other hand, our imports still continue to cover engineering goods, heavy machinery, power house equipment and such other high-value ranges of industrial products, apart from, of course, POL and POL products.

No wonder that the value-commodity ratio in our. exports and imports is unsatisfactory.

6. Share in world trade: Our exports rose annually at 2.5 per cent for the world during 1952 to 1972, and the growth rate was only about one-third of that of the world. If we had expected an improvement during the 'seventies and 'eighties, it cannot be said we really worked for it and therefore, our expectations have naturally been belied.

7. World recession: A raging recession in the world economy affected international trade, commerce and development, as also resource and technology transfers over the entire world. Each country, advanced or developing, seems to have subordinated the interests of the world economic order to their own national interests. In the whole affair, India has however, failed to achieve a relative gain vis-a-vis most other countries.

(In mid 1980s) the world is recovering from the worst recession in over 40 years. But the recovery is uneven and many developing economies still confront acute economic problems. Even though India and China largely withstood the world recession, they benefited relatively little from international commerce when the world economy was expanding.

Gulf Crisis

The price of oil itself has an inflamatory tendency. In the past, price-carteling had made prices to jump. One remembers the first few OPEC manoeures with trepidation, lest this should happen again. Iraq has for some time been making overtures for a steep price hike. OPEC was not quite prepared to underwrite this against the world economy. Iraq however did one besterr, or perhaps one worse. It overran Kuwait and its oil fields, and world oil prices jumped.

A week after Iraqi troops entered Kuwait, spot prices of crude from the Gulf-under whose desert sands lie two-thirds of the world's oil reserves jumped from around $ 17 a barrel to $ 23, then shot up to $ 27, eventually crossing $ 30. And there is no checkmate for an eventual rise to $ 40 !

And there is more For India, already in the throes of a serious balance of payments crisis, the consequences can be disastrous. Earlier, for 1990-91, the Petroleum Ministry wanted to pitch the oil import bill at Rs.8,500 crores but the Finance Ministry whittled it down to Rs.6,400 crores. Caught in the Gulf crisis, it now appears that we may be compelled to go beyond Rs.11,000 crores,.. the import in an already worsening adverse exchange counter may be disquieting.

And that is not all. Of our total NRI remittances, among 40% of the total, or nearly Rs.20,000 works in absolute figure, comes from the Middle East. This helps to bolster our reserves substantially. Now the Gulf bubble seems to have burst, and it may take considerable time for it to form again. Therefore the prospects of Gulf remittances suffer from a serious shrinkage of a permanent or quasi permanent nature and that may not be at good for the deepening exchange crisis. Meanwhile, the Government seems to be making certain endeavours towards a shrinkage in oil consumption but that may rarely match it at all.

A national policy of international trade should imbite and relfect a few fundamental issues and principles. These have been discussed hereafter. How far have these principles been imbibed by the National Trade Policy lately enunicated would require a critical probe.

1. *Diversification:* India has yet to seriously exploit the Third World and should also endeavour to expand our trade with OPEC, OCED and ESCAP countries and the Latin American continent.

2. *Infrastructure Policy:* We have only an inadequate national foreign trade infrastructure in shipping, banking and insurance, and our dependence on foreign infrastructure is still substantial. Thus our merchandise still moves in considerable quantities in foreign bottoms and much of our foreign trade is financed by foreign banks No wonder we lose out in trade terms. The Indian EXIM Bank is still an infant.

If we really intend to take big strides in foreign trade, it is inescapable that we should have a bold and imaginative growth policy in foreign trade infrastructure.

3. *Price stability:* Inflation and dynamic expansion of exports go ill together. Japan and West Germany worked a miracle in exports by price stability. Because of a sheltered market,Indian industry has become flabby both in respect of quality and price. In the field of industry, both entrepreneurship and labour must face the challenge of world markets by producing quality goods at competitive prices

Beside pricing, our quality assurance has also been suspect in the international market.

4 *Import substitution:* It might take us over a decade or so before some of the negative aspects are eradicated. Nevertheless the policy of import substitution 'has helped the country lay reasonably good foundations for self-reliance, and even export promotion. Indian Railways have done extremely well.

5. *Export promotion:* It is crucial that India must boost her export account in terms of both component and turnover. The country must change the traditional colonial pattern of exports. We must take a determined and well-organised plunge in export consultancy abroad. We must also adopt a deliberate

export promotion policy through tariffs, incentives and protection strategy. Financially, we have to be circumspect about the terms and covenants of trade. We must also largely shrink our import account except for economic development.

6. *Correcting distirtions :* There was wide-spread 'trafficking of import licences and entitlements and 'controls and regulations' thrived in many cases.

Widespread liberties have been taken by the Indian manufacturers and exporters in the matter of standards and qualities of our merchandise. This has brought about considerable bad name and erosion of goodwill.

Again, in the realm of world trade, we are only a tailender, occupying an ignominious thirtyfirst position with $2,000 million export account in 1970, and the ranking remaining more or less the same even in the late 'eighties. A clear change is now essential in our merchandise export. We have made a beginning in diversifying the hardware content of our exports, but much more requires to be done. If we are able to bolster the international value and prestige of the rupee, there is no reason why we should not be able to retrieve the lost ground and gradually salvage the situation.

That the strategy for a resurgence of exchange surplus as an antithesis of exchanage disequilibrium should also be an integral part of the national economic revival needs also to be appreciated It is only with the overall strengthening and efflorescence of the economy that the gross domestic product will grow, the needs for imports will gradually become more favourable, and adequate exportable surplus will be generated.

What are distressing are that, with frequent shifts in priorities of development, the real content of growth has become diluted by inflationary, demographic and distributional pressures. As a result, in the realm of international trade, he import-basked has not shrunk but has considerably increased, while the exportable surplus has been less than required.

A substantial 'export push' anyway has definitely got to be on the cards The compulsions of the oil crisis and the growing exchange disequilibrium are leaving very few options with the government The need for reversing the down-trend in the growth of export surplus, and for warding off a devaluation again, as lately suggested by the World Bank have become matters of survival.

Surplus-Ballasting

A constant vigil is required to be kept by the government on the trend of exports and a number of decisions have to be taken in the context of the next few Five Year Plans, with a view to bringing about basic structural changes in our foreign trade, so as to lay the foundations for a stable and sustained growth in exports. While devising any such measures, emphasis on making available the articles of essential consumption to the domestic consumers at reasonable prices should also remain paramount.

To promote exports and curtail import-export oriented 'licensing' and 'production' policies have been adopted in the 1980s Thus principles of 'dominance', 'free trade zones', 'automatic expansion' etc. were evolved and allowed to prevail.

The problem before the Indian economy is not one of devaluation but of devising ways and means for accentuating economic growth within the country by realistic use and investment as much of international soft credit as by internal mobilisation of resources through well-knit public finance, deferred consumption and even indexation, and at the same time boost the net export surplus by a complete and pragmatic reorientation of India's international trade and commerce.

The situation is not as simplistic as has often been made out. When the exchange reserves were built up at comfortable levels, these were diluted as a cover for OPEC price manoeuvres and in buying of foreign securities.

There is need for urgent and effective state policies to remedy the situation. What is even more important is the actual implementation of projects and programmes based on such policies. While growth-oriented investments should be increased in the basic sectors of the economy, spearheaded by capital-intènsive heavy industries in both public, joint and private sector, there should be simultaneous and galloping and programmed growth of large-scale mining and agronomic endeavours. At the same time, certain adjustments in our export-import schedules are urgently called for.

In respect of the developing economies in the Third World, such expedients as 'subsidisation' and 'incentives' for promotion of exports need to be taken up, but what is more important is to achieve real-time economic growth and generate hardware content for exprorts.

For those developing countries, as India of the 'sixties and' seventies, where there is a satisfactory accumulation of exchange reserves, the need also arises for pragmatic and imaginative management of the same by the government. There is a limit beyond which foreign reserves, despite investment in securities abroad, start boomeranging on prices, money supply, economic growth and finally, even on the balances of payments, and therfore, investments are also necessary inside the country not only to reap the benefits out of the reserves, but also to continually improve our aggregate export surplus.

India must take immediate recognition of the economic problems and devise strategies to get over them. India has to arrange appropriate mobilisation of all economic resources in the background of an in-depth understanding of forces at work in the economy, in order to optimise and accelerate the development of the Indian economic firmament during the decade. The need, therefore, is to go about this business of economic growth in a realistic way.

Despite all the progress achieved

by India since Independence, the country may not be far removed, considered from the viewpoint of the rate of real economic growth and per capita income, from the status of a stationary economy According to a World Bank survey, based on data up to 1968, the US GNP per capita was forty times larger than India's in the late 'fiftees. Since then while the growth of real national product of India has only crawled, that of the USA has galloped, with a resultant yawning gap in both national and per capita incomes of the world's two biggest democracies. A state of disequilibrium of the Indian economy may be round the corner

There, then, rests the crux of the problem of international balance of payments in the developing economies like India It is more a question of strengthening the economic firmament, than of simple export-import accountal. In the Indian situation, in the context of the deteriorating situation of the balance of payments, the country has to address itself to the question of structural disequilibrium, more or less fundamental in character. The priorities for growth should be properly reorganised and economic development, independent of polemics, should be taken up with foresight boldness, imagination, and if necessary, even privations during an interregnum, for the ultimate socio-economic growth, which will take care of such allied phenomena as exchange reserves and economic equilibrium in the strides □

(Contd from page 18)

of action at any one time The pumps being used were not strong enough to withstand heavy use by an entire community

Strength and simplicity are the hallmark of the India Mark II In India today, over 80 per cent are regularly in working order. But it has also been recognized that all pumps eventually need repair, and always need maintenace The invention of a community worker called the "handpump caretaker" who could grease nuts and bolts and call in the district engineer in case of breakdown was also pioneered in India.

This model - of linked tiers of responsibility for the local water supply, stretching from state level right out into the village itself - during the Decade has become an article of faith for water supply programmes everywhere It even has its own terminology "Village level operation and maintenace", and there is a whole literature and learned debate concerning key "VLOM" ingredients.

According to official WHO statistics 1.2 billion people in the developing world are still without a safe water supply from a handpump or any other source, and 1.7 billion have better method of excreta disposal than a bucket or a walk in the fields This "unsanitariness" above all. is the reason that the hoped-for advances in health that ought to have come with pipes and pumps have not yet widely materialized.

Forty lakh children still give up thier lives to diarrhoeal infections every year Only with health education and sanitation does diarrhoeal disease dramatically decline it can drop by as much as 25 per cent, according to a recent UNICEF-assisted survey in Bangladesh

If the 1980s were the Decade of the Handpump, there is another challenge for the 1990s The number of those without sanitation actually grew during the past Decade Thus, the 1990s should be thought of informally at least - as the Decade of the Pit Latrine Difficult though it will be to raise the same enthusiasm for sanitation as for water from governments, donors, technicians, politicians, community workers, and villagers themselves, it must be done A water supply is a precondition for better personal hygiene, but it is not a guarantee Only when the handpump is seen as linked to cleanliness and careful waste disposal will its reputation be finally secured. □

Courtesy : Gramin Vikas Newsletter

(Contd. from page 10)

that cavity formation occurs only in dental caries is an outdated information. In fact, cavity formation may be aggravatd in some due to excess ingestion or use of fluoride, leading to dermatan sulphate formation and ensuing demineralization of the tooth matrix.

In reality the statement that using fluoride for caries prevention only makes the enamel strong, no longer holds good, because fluoride also causes demineralization of the teeth and they get pitted, perforated and chipped off. In other words, the damage it causes to the teeth is never taken into account

It has also been reported that fluoride may induce cholesterrol production in males and can also lead to blocking/calcification of blood vessels, specially in the region of the main vessel leading from the heart viz the aorta, causing cardiac problems This certainly means that the toxic effects of fluoride far out weight its benefits in the Indian situation

There are reports of high incidence of cancer due to fluoride in US (Cancer Mortality in Relation to Fluoridation and Population Changes, Data from 140 largest US cities from 1940-1980, Burgstahler, Int. Conference of the Fluoride Society, Utah, 1986). Animal experiments from Japan and other parts of the world also suggest that fluoride is cancer causing (Mutation Research, 139, 193-198, 1984; Cancer Research, 44, 938-941, 1984 : Science of Total Environment 68, 79-96 1988). These are serious problems that a nation ought to take into account before it starts adding fluoride in massive doses to drinking water and toothpaste just because a few dentists and of course the manufacturers promote the outdated concepts on the use of fluoride. □

BOOK REVIEW

Development of Education in India, by A. Biswas and S.P. Agrawal. Published by Concept Publishing Company, Balinagar, New Delhi, 1986. Pages 936. Price Rs.700.

The authors have done painstaking research in various educational documents before and after independence. The source materials for the study include reports of expert committees and commissions, proceedings of important conferences and seminars, Government resolutions, Five Year Plan documents and the Constitution of India. The essence of the educational document upto 1985 has been culled out arranged under 34 broad heads and presented in an impressive volume. The book under review is divided into 3 parts: Part-I deals with documents before independence, Part-II with documents after independence and Part-III contains quick review of the history of education right from the Vedic times The key paragraphs in selected official documents on education are reproduced as five appendices at the end of the book.

Education is a multi-dimentional subject and occupies a central place in our national life A large variety of inputs have gone into the formulation and implementation of educational policy. The evolution of educational principles and their application have posed many problems and issues after Independence. These have also influenced the transition of an alien educational system into the national system of education based on new values and vision. The break-through achieved in many areas of education and its integration with the planning process are the outcome of many serious efforts by experts and thinkers.

The well documented book gives an authentic account of all that has happened in evolving the present system of education It is a useful reference book for students, researchers, teachers and policy makers Even general readers will also find the book informative and interesting

M.K. Ghoshal

PLANNING AND CONTROL THEORY By M.J. Manohar Rao. Published by Himalaya Publishing House, Ramdoot, Dr. Bhalerao Marg, Girgaon, Bombay 400 004. First published : 1984. Pages 243. Price Rs.125.

While the theory of optimal control in the field of economics is quite old, the explosion in computer technology, coupled with increasing sophistication in econometric modelling, has now paved the way for rapid progress in the formulation and solution of optimal control programmes, especially in the field in macro-economic policy-designing The interface between optimal control theory and dynamic economic model analysis has taken place following recent advances in control science itself The author has done a useful job in delineating the important segments of the theory with the help of mathematical tools, diagrammes, etc

The ten chapters of this book deal with control theory in historical perspective, linear model of the Indian economy in its formulation and estimates, variable representation of the econometric model, dynamic analysis of econometric model, simulation and policy experiments, prediction, derivation of optimal policies, etc The author believes that unless a macro-economic system is treated as an aggregate *perse* with the help of control and system techniques, it would be very difficult to handle any of the phenomena arising out of the dynamic nature of the economy. Numeral techniques and computers are used to apply optimal control theory to economic planning due to the size and complexity of the problems involved.

Econometric model building is however, as much of an art as it is a science Where theoretical rules are missing, the model builder can only combine such tools of analysis that are available to him, along with the rough rule-of-thumb guidelines and his own intuition which accumulates through experience In the ultimate analysis, however, the merit of any reasonable econometric work will be to provide a quantitative dimension to qualitative behaviour, and that is what have been tried in this work.

In the Indian context, we find that since actual performance of Indian economy has always fallen short of the targets in our plans, there seems to be an utter need for supplementing plans by econometric models to identify bottlenecks, constraints and lags in the system A successful prediction by econometric models can be taken as an indicator of the flaws in Plan design The models would also be helpful for short-term forecasting. The author demolishes the argument that such models are unreliable by pointing out that most decisions are actually made in the face of uncertainty, but uncertainty does not justify discarding a rational quantitative approach.

Navin Chandra Joshi

STATE POLICING IN INDIA : By Giri Raj Shah : Cosmo Publications, New Delhi, 1990.

Modern state policing emerged in India with the colonial rule to serve the colonialists on the pattern of the British system of Police administration. In the course of time the role and activities of police administration bcame more complex and intense.

The image of police in the eyes of ordinary people in India has been eroded progressively due to its nexus with politicians, criminals and corruption. The humane element of police administration is missing increasingly due to the fact that the colonial structure got reinforced without much innovation. Thus, unless the police system becomes humane and elicit people's cooperation, the system would be highly ineffective. The Third National Police Commission rightly observed: "...the police should perform with full accountability to the law of the land. The activities of police organisation require a high degree of interactive and multi-directional communicative skills with the community Police should have direct contact with the people whom they profess to serve."

The book by Giri Raj Shah, at present a Commandant of Special Police Force, Moradabad, is a welcome edition. He tries to highlight and discuss several issues related to State Policing in India—on what principle the police organistion is grounded, how the police administration works, what is its actual role, its structure in different States and union territories, shortcomings of the present police system and how to reform it.

The issues underlined in the book are broad ones. An appropriate social science perspectives would have helped to analyse the whole gamut of state policing in India—its role, organisation and performance. Systematic presentation of data with proper list of references could have enriched the book Several printing errors are seen here and there. The book is otherwise quite informative for those interested in the subject of policing in India.

Dr. M.C. Paul

(Contd. from 24)

tion of just 1000. Given the priorities and allocations, can this extremely high cost of water be termed realistic or practical ? And yet, what is the answer, since drinking water is a minimum, basic need ?

However there are other dichotomies. When projecting and calculating the number of consumers for a proposed tubewell, only the human population is taken into account. Yet almost the entire cattle population of village also consumes water from the same source. Then again, the Public Health Engineering Department is supposed to provide potable water upto a prescribed physical point. After that, the gram panchayats are supposed, through a written agreement, to take over both the hardware and software components.

Unfortunately, most panchayats do not have the resources and are simply not equipped to handle the responsibility, creating bottlenecks in the process. Examples of this abound in Jhabua, with the result that the Public Health Engineering Department— who are under no obligation to do so-are maintaining, on humanitarian grounds, the hardware and software in 21 out of 45 gram panchayats in Jhabua.

Meanwhile, the total picture of Jhabua stands out in sharp relief—a revolutionary, integrated, consolidated effort that has yielded results on more levels than one, in more ways than one. There are lessons to be learnt even from the paradoxes and the minority of projects that do not appear to have succeeded in totality on the face of it, like the stop-dam at Sarangi. Combined, these achievements, success and minor failures of Jhabua even, perhaps, be modified to suit local conditions and replicated elsewhere in the country.

One thing is certain. A powerful "Water Movement" has been unleashed through an integrated approach and little known, virtually undeveloped, tribal Jhabua has underlined the fact that with proper harnessing and management, water can be a potent force, a catalyst for social change. □

BRPL Record

The Bongaigaon Refinery and Petrochemicals (BRPL) has set new records in physical and financial performance. It processed a record throughput of 1.21 million tonnes in 1989-90, which was 4.3 per cent higher than in the previous year. Production of petrochemicals also registered an increase of 6 per cent. The sales turnover at Rs. 405 crores was 19.6 per cent higher. The pre-tax profit of Rs. 34.99 crores was the highest ever.

Ferric Oxide Plant Commissioned

India's first Systematic Pilot Plant for the production of ferric oxide from blue (Iron Oxide) has been commissioned in Hyderabad. Ferric Oxide is one of the important raw materials used in the production of louds-peakers, TV deflection systems, radios, automobiles, magnetic and communication systems. There are about 10 major and more than 15 small manufacturers who use ferrites. The blue dust is found at Bailadila Mines, under the National Mineral Development Corporation.

Story of People's Participation

The inhabitants of Kodiyankulam, a village in Oddapidaram Panchayat Union of V.O Chidambaranar District, Tamil Nadu had been nursing a grievence. The village had no pucca road. No regular bus service was there except a single trip at odd hours. Neither the district administration, nor the Kattabomman Tans-port Corporation came forward to provide this facility. The Jawahar Rozgar Yojana was also not helpful. The pucca road was of no use. It was against this backdrop that helping hand was extended by the NSS unit of the KGS Arts College, Srivaikundam.

The ten-day NSS camp held in May, 1990 discussed various plans for the development of the village. On the second day of the camp, in which the Field Publicity Unit coordinated, FPO and others told the villagers that a pucca road could be built if the villagers joined the NSS Volunteers in the construction work. Initial resistance notwithstanding, the villagers, after a couple of days, joined hands and made their long cherished dream come true. After the construction of the pucca road, the villagers appealed to the managing Director, Kattabomman Transport Corporation to arrange regular bus service. Now, two additional buses have been allotted to this route. To mark the occasion, a "victory celebration" was organised by the villagers. All those who were associated with the construc-tion of the road and launching of regular bus service were invited. To the villagers, the pucca road is a symbol of people's participa-tion for their own cause.

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December 1, 1990

Education

Only literate persons can fully participate in the development programmes of a country; the illiterate can at best be passive lookers-on. Our educational Plan intends to change the role of the bulk of our people from that of spectators to that of actors in the drama of Indian renaissance.

Sputnik

Official jargon can sometimes contain gems of under-statement. The latest is from the British Foreign Office. Their spokesman when asked to comment on the Sputnik replied : "I am afraid it is out of our sphere."

Love Of Loud Speakers

The other day I found a loud speaker inside the 'pandal' of a temple, blaring forth a most unmelodious film song. It was a crowd-collecting device and as the strange vagaries of popular tastes go, it was a popular and most effective attraction. People poured in not to pray at the temple but to listen to the lilting tunes.

Motor Fuel And Cancer

There is still no agreement among the experts regarding the relationship between motor fuel and cancer. Some studies however have shown that people who spend most of their time in driving motor vehicles in crowded cities are more prone to develop cancer of the lungs than people who do not drive in streets with heavy traffic. So far no specific substance has been found in motor fuel which produced this effect, though it is supposed that imperfect combustion is responsible. There is neither proof of any relationship between cancer and motor fuel, nor of the fact that combustion gases are harmless.

Sans Bars

In some of U.P. jails prisoners are no longer cribbed behind the bars nor hunddled together in the dark dingy cells. Nor are they fettered or chained.

They work in the open with the dignity of any free labourer who earns his daily bread by the sweat of his brow.

They live in the hastily improvised camps only separated from the rest of the area by thin wire-fencing which might give way at the wisp of a strong breeze. The Prison Code, which prescribes hard labour is no longer applicable to them, for these prisoners working on dams and irrigation canals and the construction of roads are paid their wages. In short, they are turning over a new leaf in their lives, so that they may become useful citizens on the completion of their terms of imprisonment.

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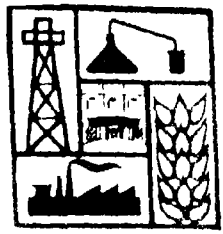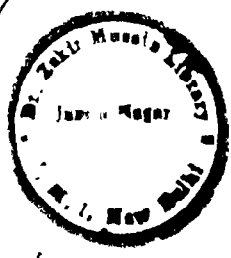
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Development Diary

Record Turnover By BHEL

Bharat Heavy Electricals (BHEL) registered a record turnover of Rs. 2921 crores during the year 1989-90. Despite increased input cost and adverse exchange rate variations, BHEL successfully achieved the goals and targets set out for the year. It paid Rs. 665 crores to the Exchequer by way of duties, taxes, interests and dividend. BHEL has been earning profits continuously since 1971-72 and paying dividend for the last 14 years.

Last year, capital investment by BHEL on new schemes, modernisation and development projects was Rs. 81 crores.

Fine Performance

The Vishakhapatnam Port Trust has shown remarkable performance both in financial and operational areas during 1989-90. The revenue account of the Trust for the year 1989-90 indicated a net surplus of Rs. 3,966.43 lakhs against Rs. 3,788.91 lakhs in the previous year.

The Port handled a record traffic of 21.12 million tonnes against 20.37 million tonnes in the previous year. Out of the total traffic, Dry Bulk cargo constituted 64 per cent. The total number of ships handled during 1989-90 was 838 against 758 in the previous year.

Rural Energy Planning

The Centre for Integrated Rural Energy Planning (IREP) at Bakoli in Delhi provides training for the professionals and other staff involved in the preparation and implementation of IREP plans and projects. IREP projects have been set up in 208 blocks in the country. The Bakoli IREP centre has been set up with the technical and financial assistance of the Planning Commission as part of the National Integrated Rural Energy Planning Programme. This is one of the 5 Centres being set up in different parts of the country for imparting training and R&D support for the Programme.

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To Our Contributors

Articles for publication in YOJANA are accepted in good faith presuming these are original write-ups of the contributors/authors and not plagiarised. Unfortunately, in some cases, unscrupulous contributors have sent plagiarised articles which caused great embarrassment to YOJANA.

Authors/Contributors are, therefore, requested to send only their own articles.

It is hereby clarified that in future if an article is found to be plagiarised, it will be the sole responsibility of the contributor to face legal action, if any.

Give The Girl Child Her Due

1990—the year, designated as the SAARC Year of the Girl Child, is passing out. In a way, every year is an year of the girl child so long as the disabilities she is suffering from, continue. In the ultimate analysis, only a radical change in the attitude of society towards the girl child can bring about her overall development. Here in the series of articles an attempt has been made to portray the status of the girl child, projecting the problems she is groaning under and suggestions to overcome, them. These include the essays which secured the first three prizes in the essay competition held by YOJANA to mark the International Literacy Year and the SAARC Year of the Girl Child.

IN India, like most of the countries of South Asia, the status of women remains—in most of the cases—as of a person with limited rights and considerable duties right from her birth. An extremely important indicator of her status is the adverse sex ratio, with males outnumbering females by almost 10 per cent in all the States. The only exception is Kerala—with its high literacy rate of 65 per cent for women—which has a sex ratio of 1034 females per thousand males. In Karnataka, Orissa, Andhra Pradesh, Jammu and Kashmir and Himachal Pradesh, the sex ratio is 950 and in Punjab/Haryana and Uttar Pradesh it is even less at 894 and 880 respectively. This is due to the higher female mortality rate which continues upto the age of 35 years. The adverse sex ratio in India has been gradually getting worse over the years, with the exception of the 1981 census, when it showed a slight improvement.

The neglect and discrimination of the girl child are extensively and deeply rooted in a complex set of social, cultural and historical factors. Even after four decades of Independence, and more than a decade after a National Policy for Children and a National Plan for the Development of Women were adopted, a girl child, who embodies both youth and womanhood, is still a barely discernible shadow on the periphery of public awareness.

It is no recent discovery that, if we are to undo the injustice of centuries we must begin with a holistic approach and bold new thrust in improving the girl child's health, education and status. Extending the reach of the health and education infrastructure—both quantitatively and qualitatively—and deploying the media wisely are essential if we are to create a climate in which girls can develop to their full potential The imperatives of national development and a humane social order demand this as the very minimum.

Discriminatory Feeding

To take stock of the situation, one has to follow the well known

Morinda study which states that the most significant determinant of nutritional status is sex—that is, a child's sex *per se* more consistently accounts for nutritional status than any other independent variable. Several micro-level studies have found that a girl's diet is inferior, both in quality and quantity, to a boy's diet, and that higher numbers of girls and women suffer from malnutrition as compared to men and boys in the same age groups

Discriminatory feeding practices start early in life. Girls are breast fed for shorter periods (often this is prompted by the anxiety to conceive and give birth to a son soon after a daughter's birth) and receive less supplementary food than boys. Sons are shown preference in the distribution of more nutritious foods such as milk, butter and eggs The National Nutrition Board dietary consumption data shows that girls in the age group of 13-16 consume less than two-thirds of the recommended calorie intake.

Due to undernourishment and the resultant poor physical constitution, girls are more likely to contract infections and would be slower to recover in case of illness This, combined with lack of medical attention during the vulnerable years of childhood accounts for the high female mortality rate A study undertaken in one of the Delhi Hospitals showed that only 6,000 girls attended the hospital in a year as against 7,600 boys even though the diseases suffered by both are the same Recently with the advent of sex determination tests such as amniocentesis and the consequent abortion of the female foetus, discrimination now begins even long before the girl is born.

Vicious Circle

The cycle of malnutrition and undernutrition continues, with small mothers giving birth to small babies who grow inadequately, particularly if it is a girl, and who in turn perpetuates the cycle. The infant mortality rate (IMR) is much higher at 141 in rural and 78 in urban areas if the mother is below eighteen years, and if she is older, (20-21 years), the IMR is reduced to half—85 in rural and 48 in urban areas However, raising the age of marriage is only feasible if girls are educated, taught some skills and empowered for a larger role with an earning capacity to enable them to do something for themselves.

The IMR is also affected by the educational status of the mother, with illiterate women having a much higher IMR for their offsprings—145 for rural and 88 for urban areas. If however, the mother is educated upto the primary level, the IMR is less, and for mothers above primary level, it comes down to 71 in rural and 47 in urban areas

However, statistics on health coverage and nutritional status often disguise the trouble spots that can be tackled on a priority basis The glaring disparity between male and female infant mortality rates, if plotted on a map, shows a clear belt running across the north-western part of the country, with a few pockets elsewhere With immediate health and nutrition interventions focussed on the area, the status will definitely improve In addition, frontline workers, such as anganwadi workers and school teachers can be empowered to spot and correct such discrimination wherever they encounter it

The Integrated Child Development Scheme (ICDS) network is clearly an effective response to the problem of early neglect of young children Through its immunization, nutritional supplementation and pre-school education components (which now reach ten million children) it can offset the discrimination a girl faces at home and can lay the foundation for healthy, physical and mental development

Ripple Effect

The National Policy on Education (1986) affirms that a new structure of equality between the sexes must be the cornerstone of education. It aims at removing traditional discrimination and sex stereotyping by diversifying school curricula and promoting the access of girls to vocational and professional courses.

The effect of a girl's education on every other aspect of her own life and that of her family has even wider implications for the development of her community. Educated girls who are selected for training as anganwadi workers or teachers reinvest their knowledge and skills in their own community, enhancing not only their own status but also that of those around them. Nine educationally backward States have been identified by the Department of Education, Ministry of Human Resource Development, namely Rajasthan, Bihar, Madhya Pradesh, Uttar Pradesh, West Bengal, Assam, Andhra Pradesh, Jammu and Kashmir and Orissa In U P in 1986-87, out of 68 lakh drop-outs, 45 lakh were girls In Bihar, 30 out of 39 lakh children not attending schools were girls Efforts are now underway to implement non-formal inputs for 3-6 year olds through early childhood care and education centres

The search for brave new efforts to give the girl child her due, to allow her to evolve her full potential, involves a process of social mobilisation that will make her everyone's concern—media, family and community, as well as government and voluntary agencies. By supplementing formal schooling with non-formal education that conforms to local needs and constraints; by enlarging the ambit of child development programmes with the creation of new channels to reach adolescent and pre-adolescent girls; by reinforcing constitutional mandates through widespread awareness of the rights of girls; these are only some of the ways in which we can empower the girl child to enter the mainstream of economic and social activity and to help her to walk out of the maze of neglect in which she has been lost for centuries. □

Programmes For Women

A New Thrust Needed

—Usha Singh

WOMEN of India, representing 48.3 per cent of the total population today, are at the cross-roads. A large number of Indian women are slowly emerging out of a system that had oppressed and exploited them for centuries. Today they have pervaded every conceivable sector of the national activity and had made their indelible impression in various fields which have so far been considered as the exclusive rights of men. But this is only one side of the coin. In our cities and villages, majority of women still suffer from drastic inequalities, despite receiving constant attention of both planners and policy makers. Their life at home and outside still remain extremely ardous and monotonous.

This means that the developmental efforts definitely have to be given a new thrust. In India it was in the eighties that women's development was recognised as one of the developmental sectors by including a separate chapter 'Socio-economic Development of Women' in the Plan Document of the Sixth Five Year Plan (1980-85).

But programmes for the welfare and development of women have beer taken up right from the First Five Year Plan. The Central Social Welfare Board, set up in 1953, undertook a number of welfare measures through the voluntary sector. In the second Five Year Plan, women were organised into Mahila Mandals. The third and Fourth Plans accorded high priority to women's education. Measures to improve maternal and child health services, supplementary feeding for children and nursing and expectant mothers were introduced. The Fifth Plan supported economic development, employment and training for women as the principal focus for their socio-economic development. The Sixth Plan taking into consideration, the Report of the Committee on the Status of Women, had in its basic strategy a three pronged thrust viz. health, education and employment.

Achievements

In the Seventh Plan, the multi-disciplinary approach evolved during the Sixth Five Year Plan was continued. In addition, efforts were stepped up to inculcate confidence among women and to bring about an awareness of their own potential for development and also their rights and privileges. A significant this direction was the identi of the beneficiary-oriente grammes in different devel sectors which provide direct to women. There were 2 beneficiary schemes.

In the field of health, progr of maternal and child health s received high priority duri period. Primary Health Sub-(on the basis of one centre population of 5,000 are being Health education was pr through multi-media activiti interpersonal communicati medical and paramedical pe working in the field. Camp organised exclusively for wo create health consciousness them. Mass education and activities were geared up to pr and create awareness about the marriage, child survival, d motherhood, etc.

By the end of the Seventh P the districts are targeted covered by imunisation. Expe of life for females is expec exceed that of males for the firs The sex-ratio which had been ing since 1901 to 1971 has sh

slight increase in 1981. Modern techniques of sex-determination of foetus through amniocentesis has led to disturbingly high proportion of female foetuses being destroyed in various cities and towns. A Bill for regulation of sex determination tests only for medical reasons is in the final stage of drafting.

Education

A number of steps have been taken for promoting women's education. The main strategy for education is a distinct orientation in favour of women's equality and empowerment. Motivation-centred programmes with special inputs to promote self-confidence and self-sufficiency among women have been stressed. School text books are being reviewed to remove the sex bias. Women's Developmental Centres have been set up in a number of colleges to bring about social awareness about women's issues and to focus their efforts on the rural women, particularly those belonging to Scheduled Castes and Scheduled Tribes. Special cells are being set up in the State Directorate of Adult Education and State Resource Centres to plan and administer women's programme and to encourage their participation in the condensed courses organised by the Central Social Welfare Board. Despite all these programmes being in action, the rate of female literacy as per 1981 Census stands at 24.82 per cent as against the male literacy of 45 89 per cent. Similarly, while dropout rate amongst girls at primary level was 50.3 per cent the same for the boys was 45 8 per cent

Regional Vocational Training Institutes to provide training facilities in the basic, advanced and instructional level skills for women have been set up. About 230 ITIs have been set up exclusively for women. As a result of these efforts, employment of women in the organised sector, the public sector and the private sector has gone up substantially. However there was a significant rise in the number of women job seekers.

Apart from the other general programmes where women are given priority, DWCRA (Development of Women and Children in Rural Areas) -- a group - oriented programme—is exclusively meant for rural women and children. There is also the scheme "Science and Technology for Women" where in identification and formulation of Science and Technology Programmes providing opportunities for gainful employment to women, specially in rural areas, reducing drudgery in their lives, improving sanitary and environmental conditions etc. have been taken up.

New Initiatives

The Eighth Plan Approach Paper has sought to place emphasis on increased opportunities and improved conditions of 'Employment and Training for Women' be it in areas of self-employment or in the service sectors. Maximum resources would be directed towards releasing the productive and creative energies of rural women so that they become equal partners in the socio-cultural transformation.

In the Plan of Action of the National Front Government announced by the Prime Minister at the begining of 1990, it was said that a National Commission with statutory powers would be set up to look into cases regarding offences against women as well as serve as a mechanism to facilitate redressal of grievances of women. A Bill in this regard has already been introduced in Parliament.

The National Commission may be viewed as the culmination of the demands and aspirations of women's organisations for a body that will safeguard the rights of women. It will also look into the complaints and take *sus moto* notice of the cases involving deprivation of the rights of the women. The Commission shall monitor the proper implementation of all the legislations made to protect the rights of women so as to enable them to achieve equality in all spheres of life and equal participation in the development of the nation. The Commission will have all the powers of a commission of Inquiry to summon persons and investigate cases of atrocities on women. Officials will be bound to cooperate with the Commission in providing information and documents and those refusing or ignoring to do so will be punished.

High Power Committee

The Government gives due recognition to the critical role that Trade Unions and the Mass Media have to play in improving the status and conditions of women and would shortly be initiating measures to harness the scope of these towards this end A high powered inter-Ministerial Coordination Committee will be set up to review the progress of various programmes and to advise the Government in formulating necessary policies and programmes providing more and more opportunities for employment and training of women in the Eighth Plan. In these efforts women in the informal/unorganised sector will be given due recognition as advocated in 'Shram Shakti'— the Report of the "National Commission on Self-employed Women and Women in the Informal Sector".

There is still dearth of systematic training and professional approach to women's programmes regarding the awareness, organisation and enhancement of women's skill. What seems to be imperative in the present context is enhancement of women's economic skills and to improve opportunities and providing necessary support structures for them to be free from the drudgery of domestic chores. Combating social evils also is critical for this developmnt. This would serve to bring about a holistic development as advocated in the "National Perspective Plan for Women"

Towards this, Government is **making all out efforts to involve non-governmental organisations, experts and subject specialists, social workers, academic and research organisations, technical institutions, trade unions and above all women themselves so as to ensure optimal participation by all concerned and at all levels.**

(The author is Minister of State For Human Resource Development)

1990—Setting Positive Roles For The Girl Child

'Bachendri Pal scales Mt. Everest', 'P.T. Usha— the girl with golden feet', 'All women crew steers Airbus', 'Girls score over boys in Higher Secondary examinations'. Such events hit the headlines in newspapers not just because the feats achieved are extra-ordinary. What really make the news is that the victors belong to the community of the fair sex which has been traditionally confined to household jobs. When women come out of their narrowly defined roles, it is considered something different. These conservative concepts are not the characteristics of any particular caste, class, community or nation. They seep across the boundaries of nations and continents.

Most of the underdeveloped and developing countries inherit this bias even today. The forum of South Asian Association of Regional Cooperation systematically traced the seeds of this discrimination in the unequal treatment meted out to girls right from their infancy or even before their birth.

To re-orient the social attitude and Government policies, the year 1990 was declared as the SAARC year of Girl Child during the 4th SAARC summit held in Islamabad (Pakistan) in 1988. Detailed Action Plans were drawn for each country. Rs. 1075 crores was provided by the Department of Women and Child Development for this purpose.

Specific Focus

Apart from the unequal treatment in various spheres, certain problems are specifically related to the girl child. For such problems, a direct attack has to be made on the root-cause. For example, under the Immoral Traffic Prevention Act, 1956, specific areas and classes from where these girls are drawn are to be studied to see if the problem can be tackled at source. If it follows impoverishment, brought about in a drought hit area which steps up the migration of girls to red light areas, specific programmes could be formulated to prevent such migration. At present remedial action at the points of destination alon contemplated.

In the practice of Devdasi Jogins, the genesis of the probl in the socio-religious sanction. provisions, more or less re ineffective. Legislation in Karna Andhra Pradesh and Mahara has made it an offence to dec young girls, but the practice continues. Programmes on the of prevention as well as rehabilit has to be evolved. If the pr exists in some other States and there is no such Act, then Department of Women & Development should pressurise Governments to have an enactı

No single major factor affect status of women than the pract child marriage. To mark a ma campaign against it, the slogan child marriage in 1990" was ado Special emphasis was given t four States where this evil is rampant— Uttar Pradesh, B Madhya Pradesh and Rajastha

Yojana thanks Dr. (Mrs.) J. Bhagyalakshmi who extended her kind co-operation in heading the Competition Committee.

Editor

Prize Winning Essays

First Prize
Tutu Sen
Nagpur

OPEN a map of India. The most striking are the rivers crisscrossing the length and breadth of this huge landmass. Ironically, almost all of them bear feminine names—Ganga, Yamuna, Krishna, Kaveri, Godavari and so on. These rivers are the life-line of India's millions giving them life-sustaining water, food and strength to the economy. On the other hand, lack of proper drainage, industrial and human wastes pollute these rivers and their purity remains an ephemeral image described so beautifully in the Vedas and Puranas. So is the case of women in India—glorified as mothers, daughters and wives—abused and tortured and given second class status in the Indian Society. And it all begins with the birth of a girl in Indian society.

Indian society may be divided on the basis of caste, religion, wealth and region but there is a thing which is common to all these strata of our society—the birth of a girl child is unwelcome. On the contrary, the birth of a male child is celebrated with sweets, music and gaiety. He is looked upon as a saviour on whom the parents will be able to lean in their old age, the one who will perform their last rites and carry the family line through the ages.

The girl in Indian society is more of a liability than an economic asset. With changing times marriage no longer means the union of two souls, where the father performs *Kanyadan* and blesses the couple to live happily ever after. With the changing times, it is the dowry that counts more than the *Kanya*! The result may be female infanticide by the poor The rich are no better; thanks to S.D.T. (Sex determination test) and legalisation of abortion, the female foetus is destroyed

For those who survive, the future is almost bleak. Even statistics can't deny this fact For every 1,000 males in India there are 933 females (except in Kerala), the number declining from 972 in 1901 to 950 in 1931. The male worker accounts for 51.62 per cent, while the female work participation is 13 99 per cent of the total population. The literacy percentage is no better—of the total 36 23 per cent literates, 46.89 per cent are males and 24 82 per cent females. There is a general allegation that statistics are often used to suit one's interests—but whatever the argument there is no denying that the girl in Indian society does not seem to have a bright future

It is said that India lives in her villages The girls in these villages are mostly confined to the four walls of their households. She is the honour—*izzat* of the family. She is no better than the cow tied to a post in the cowshed of her home The girl hardly ever goes to school. Her childhood is lost in looking after young children at home, taking food for her elders to the fields and doing household chores. Schooling is looked after as a wastage of time and money Besides, it teaches the girl to read a few lines but fills her head with radical ideas so that she starts questioning the very norms of society Instead of books, if she learns her household duties it would prove much more useful in future, for isn't she destined to be married and have a family of her own?

The urban society is no better. Think of the children of Sivakasi, bidi workers of Andhra Pradesh, *Chikan* workers of U.P., maid servants working in our houses—the list is endless.

The more fortunate ones go to schools But statistics show that the number of drop-outs is maximum in case of the girl child in a country where goddess Saraswati is worshipped as the Goddess of Learning. For those who are inclined to continue their education the in-laws are given full authority to take a decision once the girl is married.

It is in the Indian society that we find that young girls are married to the deities in the South under the *Devadasi* system and ending up as victims of lust of the 'pious' men. A child widow, a victim of child marriage in Rajasthan, a girl child sold off to feed the family in Orissa or elsewhere or sent to the 'harem' of a rich Arab in West Asia, so that the family can have a square meal—the abuse is pathetic.

Competition: GIRL IN INDIAN SOCIETY

"Jawaharlal Nehru had said, 'No great change can be brought about merely by governmental functioning, although that is important, and we aim at great changes. Therefore, it is necessary that community schemes should be based on the intimate cooperation of the people"

It is this participation of the people of India that has to be sought in improving the condition of the girl in Indian society. The passing of a legislation, banning child marriage or making primary education free and compulsory for the girl will not serve the purpose. There is a necessity to educate the people and make them understand that a girl is not a liability but an asset.

It is perhaps this idea that is slowly but surely penetrating into the minds of the millions of Indians. More and more parents are realising the need to educate the girl, to make her economically independent, and her stand on her own feet if ne The results are slowly beginni show. Girls fare much better boys in examinations. More more girls are getting a chan have education. Her childhood not be marked by rainbows fairies but there is a silver lin there is hope for the girl in I society. And may this hope char a belief—commitment, in whic girl in Indian society is discriminated against.

Second Prize
Sudha sharma.
New Delhi

SINCE time immemorial, girl in India is considered to be inferior to a boy. Everybody rejoices and celebrates the birth of a male child whereas birth of a female child is an occasion for sorrow and sadness. Religion being a dominant factor in Indian Society attracts more value and superiority to a male child than to a female one. On the same grounds, man is deemed to be superb, superior and saner than a woman, who is considered expendable, dependent and economically unproductive. In the days of yore, so much so, certain parents in India practised female infanticide.

The girl child faces every odd situation in her struggle for survival, caught in a maze of cultural practices and prejudices that strip her of individuality and mould her into a submissive, self-sacrificing daughter and mother.

Her labour as an important contributor to the family income, either as a domestic servant, as an agricultural hand, or in caring to her younger siblings, robs her not only of her childhood, but also her innocence, offering her only ignorance and weakness.

The sheer size of India's girl child population makes its problems so much more daunting and challenging and because of that, there was the need to create a critical awareness on the situation of women and an atmosphere of concern in favour of women—even for the successful implementation of any programmes relating to these issues, that SAARC (South Asian Association for Regional Co-operation) comprising India, Sri Lanka, Nepal, Bangladesh, Bhutan, Pakistan and Maldives decided to observe 1990 as the Year of the Girl Child

India, is a country where the discrimination begins right from the womb, and where the female child who makes past that point has to face neglect and poor treatment at every subsequent stage, and because of that girls, mainly suffer from malnutrition. In many states, sex-determination and sex-preselection practices and tests have come in handy as a way of concretising prejudices against girl child. In Bombay, in the year 1984, 40,000 female foetuses were aborted following amniocentesis tests. Can anybody be held responsible for all those murders?

What happens to a large number of those girls who survive the maladies of foeticide and infanticide? A girl is never seen as contributing to the family's income, but is considered, on the contrary, a drain on it. Hence, she does not deserve to be spent on as she does not represent a 'sound investment'. The result is that a large number of India's little girls become victims of malnutrition and diseases of various types and suffer from more frequent illnesses than their fortunate male peers.

From the time a girl is born, viewed as a liability, both mora economic The sooner she bec the responsibility of another fa the better, one mouth less to How selfish are those parents! ! married at that age when she sl be playing with her friends, ru about in a carefree way, pl games the children play—c with the trauma of pregnancy torment of giving birth with few facilities at all. She endures all and anguish all alone often i house of her mother—her chi body still too weak, too tend bear such agonies

Parents don't understand proper care of girl is importar only because of her own sake, b the society's future. The healt nutrition of the girl today will the health and nutrition of the f generation, because she is the m of tomorrow and no future c built on an edifice that is not s and healthy and which is cor with discrimination and injusti every level.

The main remedy is the educ of children Inspite of all effo educate children, the girl child very limited access, if at all to sc During an enrolment drive she get enrolled and even attend s only to drop out very soon, una cope with both school and domestic responsibility. Th usually further reinforced by family which does not think giving her an education is goi help them in any way. For s

going to be away from them soon.

She has the right to equal education, whereas only 17.9% of rural women and 47.82% of their urban counterparts qualify as literate. The female literacy rate is still only little more than half that of males, with the gender gap between males and females widening rather than narrowing. The main reason for girls not getting educated is lack of co-operation from family members. Secondly, the additional burden of domestic work which the boys are spared of and moreover the absence of schools within walking distance. Whatever is the work at home, from washing the utensils, to caring of siblings, to looking after domestic farm animals, also collecting fuel, fodder, food, water etc. Whereas in cities the girl child is mostly busy earning for the family washing vessels, as a domestic servant along with her mother, in metropolitan cities, if she goes to school, she can hardly complete her schooling and married off the earliest.

The rural girl child because she does not work in a factory, a workshop or hospital is beyond the reach of the law. The basic premise of the Child Labour (Prohibition and Regulation) Act of 1986 is that "there must be an identifiable employer and employee". How can the work situation of a rural girl child meet those stipulations?

The rural girl child is at the bottom of the ladder, just as the rural women, particularly when she is a land-less agricultural labourer. Besides doing all the household chores, she also works "in disguse" at an Employment Guarantee Scheme site, alongside her parents. She is thin, frail and is practically unrecognisable as she has a sari *"Pallu"* pulled across her face to hide it - because if the *mukkadam* or contractor sees that she is less than 14 years, he is not allowed to employ her. Of course, even if he does find out, this could be overlooked for a small favour in cash or kind. With the pressure of people seeking work at EGS sites, it becomes a "privilege" to be able to work at a back breaking task of stone crushing or carrying mud to earn Rs 3-5 day.

We have clearly little or nothing to give the female, yet we condemn her as a woman when she is steeped in superstition, ridicule her when she does not send her children to school, hold her in contempt when she does not practice birth control and does not come forward to take part in public, social and political life. Because of her special circumstances, she stays at the bottom of the social ladder, inarticulate, hidden in the back ground and often completely helpless. Yet, many aspects of society's progress could hinge on the improvement of her status and condition.

The worst form of work that she becomes part of is the process of getting bonded, along with the rest of her family As a result, she is often exposed to sexual exploitation as well. It is calculated that 20% of the prostitutes in India are child prostitutes. In Bombay alone, there are 20,000 child prostitutes. Enough cases are there of girls coming into this flesh trade because they have been assaulted by a father, uncle or brother If this were not enough, religion lends the process its own impetus, as with the "devdasi" system. The "devdasis" having been given unto God' often have no other means of earning a living. but prostitution

On the one hand, there are all kinds of controls over the conduct of girls, on the other, there is sexual abuse within and outside the home. Babies, little girls and young women are sexually assaulted The daughters of prostitutes go into the same trade in order to pay back loans their mothers had taken.

The right to life of the female child is the very first that demands our attention. They must be freed from the stereotypes that girls are weak, or that girls cannot do this or that, the girls are inferior to their male counterparts, that her ultimate goal is marriage and the greatest possible achievement - giving birth to a son.

So long the linkage with the wider questions of poverty and its specific impact on the girl child is not understood, it will not be easy to fight for the many needs so crucial to the development of the girl child. Unless her parents earn more and are able to break the stranglehold of poverty, she will be forced to work, given the present social circumstances.

She has to be given opportunities for acquiring education and to develop her skills in keeping with her work, her life, her needs. It is a battle to be fought on many fronts going beyond the child herself. And yet, our society, our future is linked with hers. We have to make people conscious of this, so that we can improve the situation for her and ourselves. Overall improvement can come only when women get a better deal, when women get an equal opportunity to work and advance themselves.

What are the important demands we must fight for to ensure that a better deal materialises?

Sex-determination tests should be banned. She must be educated to understand that she is no less than her brother. Her childhood should be restored to her. Opportunities should be provided for vocational studies guaranteeing employment. A strict ban on Devdasi system. Implementation of relevant laws and rehabilitation of those who have turned to prostitution. Rehabilitate the working girl-allowing her to play and grow up.

We can safely conclude that with the expansion of education and with advancement in science and society, people becoming richer and richer, girls will be treated on par with boys, cared, well nourished, well clothed, respected, loved and well looked after Much of the responsibility also lies on the girls as to how they behave and show their worth, capabilities, and all that modern society has bestowed on them. □

Competition: GIRL IN INDIAN SOCIETY

Third Prize
Nikita,
Patna

WHEN Adam and Eve descended on earth, perhaps Eve never realised that her clan, her sex, the fair sex, would one day be called the weaker sex and subjected to all the travails society had inflicted.

Thanks to modern technology, even before birth, the sex of the child to be born is known. But if the status of a boy and a girl is equal, what is the need for sex determination? It is a known fact that it is less for curiosity and more for abortion, if it is a female foetus.

But this is India. And what is Indian society? A plethora of people—orthodox and unyielding. And of course the newly turned elite class wich squirms its nose if the neighbour aborts the female foetus but she does the same when her time comes.

What is a girl for Indian society? A burden which has to be fed and brought up and then married to give birth to burdens like herself. A class which has to be tolerated and then bundled off after marriage.

In most Indian families, a girl is discriminated right from the birth. In villages and small towns and cities which are usually inhabited by migrant villagers, discrimination is natural. The girl is supposed to act as a second fiddle to her brother.

A boy is superior to a girl by birth. But the qualities which afford him this superiority are not to be questioned. It is a sign of an ill-brought up girl. But the irony is that the mother who was herself one day a girl, ill-treats her daughter. She does not realise the need to shelter her daughter from the problems she herself had to face

Just like the backward class is backward by the accident of birth, so is a girl lowly by that accident. Most girls are given less nutritious diet than their male counterparts and they are not sent to schools to study but are kept at home to share their mother's daily chores. But if this trend goes on, the uneducated girls. once they become mothers, will repeat the same exercise. The result—Indian society will remain backward.

Paradox might be the correct word to describe Indian society. In a society where female deities are in scores, the representatives of the deity are subject to untold humiliation and neglect. For, however broadminded the parents, however forward the place a girl lives in—the moment comes, is bound to come, when an unveiled suggestion comes to her that she is inferior because she is a girl.

As per the dominant Hindu culture, a boy is wanted so that he can light the pyre of his parents. But can a girl not do the same? Why do parents cite this as a reason to pray for boys?

The dowry problem is a direct result of the discrimination between a boy and a girl. The boy is made to feel that he is the sole legislator of the Universe. So when he grows up, his mentality coaxes him into playing the lead part.

When two children—a male and a female grow up, both face the same society but a society which is more indulgent towards boys, the scales weighed down heavily in boy's favour. A male child when he becomes a boy, is free to go to any place he chooses but the more a girl grows up, the more strict should be her code of conduct. Parents say this is because society inflicts regulations which they have to follow to remain as dignified members of society. Otherwise they would have given the same freedom to their daughters as to their sons.

But when the neighbour's daughter is seen outside, the parents say that it is not good for the girl. So where does their regard for society go? The problem is that society is made up of parents like themselves—orthodoxy cloaked with a veneer of respectability.

Parents seldom realise that when they do these types of things, it hampers the mental growth of their daughter, it leads to mental torture and an about-turn from whatever good society might have for her. I she ceases to have an independ mind and loses the capacity to act her own free will. She remain classic modern puppet, dancing the tunes of her parents.

Lately there has been a tre among parents to bring up th daughters on an equal footing w their sons, i.e. provide them with same facilities, schooling and eq treatment on all counts but one. A that is their freedom. They can anything but within the four walls respectability, the hoax cal modernism, and social accountabil which hide the naked face traditionalism.

The net effect is that the g undergo mental stress. It is like go to a party without a present. T means are there but there is no e She can acquire all the knowle about the means of entertaini herself, but she cannot enjoy same. She becomes aware of the f of life but debarred from enjoyi life. Though there is no distincti between her and her brother, mental peace which she seeks, eluc her.

Ultimately, it is these famil which constitute society, each havi its own basic, orthodox mental which finds solace in the observar of those practices. A drastic change the outlook of society is to be broug about to give fair treatment to t girl. But it should be remember that half the society is constituted grown up girls—women. Th conveniently forget the travails their youth and see no reason to spa the oncoming generation from t humiliation they themselves h faced. For they remain content to in the shadows of grown up boys men, their husbands.

A girl feels morose when sl remains a girl, but happy when sl becomes a wife, and happier st when she sires a boy. It would be the fitness of things if women take u their cause themselves. As of now, mother ill-treats her daughter, mother-in-law her daughter-in-la and so the cycle goes on.

Woman! Thy name is madness!

Consolation Prize
Shanti Jothivelu, Jabalpur

IT has been said 'where women are worshipped, Gods prevail in that place'. Was this phrase written out of sympathy for women? Probably, in ancient times, women were given a venerable position in the Indian society. But does this phrase apply to the modern Indian society? Perhaps not!

The Indian society hasn't changed much since a millenium. After 43 years of Independence, women are considered inferior to men. The Constitution of India has done away with disparity between men and women but due to social and religious taboos, the status of women in India is still different from that of men. No matter how much we talk about equality of sexes, in practice ours is a male dominated society.

The attitude towards the girl child is, of course, a reflection of Indian society's attitude towards women in general. Women are widely considered to be expendable, dependent and economically unproductive. The girl is thus born into an apathetic and hostile environment. The Indian woman faces a harsher reality at home. She has been the victim of wife-battering, sexual abuse, dowry deaths, the 'purdah' system, the 'sati' system and a myriad other forms of repression and exploitation. She has been continually downgraded, trampled upon and atrocities are committed on her.

For centuries Indian women have been conditioned to accept without protest, a status secondary to that of man. Confined by taboos that seek to limit her potential, the woman has traditionally been the weaker, the inferior sex. Today the equations are fast changing. While, a miniscule fraction of Indian women is on the verge of coming out of the obsolete value system, the vast majority of them continues to languish in primordial primitiveness.

She has been deified as 'Shakti', Mother Goddess, Durga, Bharata Mata—glorified in the abstract as the ultimate source of all creation; Yet she is denied her basic rights, even the right to life. Though labelled as the weaker sex, the female child is biologically stronger than her brother at birth. India is one of the few nations where female infant mortality is higher than that of the male child. As UNICEF points out in its Annual Report on the state of the world's children, India is the only country in the world where the ratio of women to men has been declining over the years. From birth, the female child is discriminated against in the matter of nutrition, food, clothing, education, etc. In the SAARC designated year of the Girl Child her plight may not show any drastic improvement.

Even as the Atharvaveda says— "The birth of a daughter, grant it elsewhere, here grant a son." This itself sums up the Indian attitude towards female children who today number more than 13 crore. In India, birth of a boy is considered to be a gift of God, whereas that of a girl, a curse. Right from birth, the girl child in India is breast-fed for a shorter period, cared for less and given the least priority for nutritious foods. In some parts of India, the practice of female infanticide till prevails.

Recent reports say that in the drought prone, poverty stricken village of Usilampatti, in the Madurai district of Tamil Nadu, the birth of a female child is cause for despair. Ritual killing of infant daughters is a common phenomenon which no government at the State or Central level has bothered to tackle. The government has made no effort at all to study the causes for the prevalence of such a practice, or for taking remedial steps. In Rajasthan, Gujarat and some parts of Bihar and U.P. this practice still continues among certain communities.

In most rural areas, abject poverty arising out of illiteracy, ignorance, unemployment and the incapacity of the menfolk to maintain the family is probably the most common cause for female infanticide. Boys are kept because they would work and earn money. Since the rural people are mostly illiterate, they don't send their boys to school. Most of them are therefore unfit for anything but manual labour when they grow up. In most households, women earn much more than men. Men are often addicted to liquor and other vices. They live on the income of the womenfolk, yet they are worshipped while the women are trampled upon.

The phenomenon of female infanticide has more to do with the dowry system. If one does not have money, the daughter may remain unmarried, a burden on the family for the rest of her life. Despite all the claims that it makes, the government is only for the rich. Little wonder, when the girl is in such a situation she is considered to be a curse.

The girl child is often subjected to deliberate neglect and discrimination—not even allowed to be born. In a society which is strongly tilted in favour of the male child, she faces a prejudice that cuts across all caste, class and religion. The girl child faces injustice, heavy odd in her struggle for survival, caught in a labyrinth of cultural practices and prejudices that strip her of her individuality and mould her into a submissive, self-sacrificing daughter and mother.

Considered only as a contributor to family income, she has to work day and night as a domestic servant or as an agricultural labourer or as a worker at a construction site for a meagre sum. She is robbed not only of her childhood but also of her innocence and curiosity to know things Often, she has to bear the insult of the houseowners where she serves. We have had a woman Prime Minister for more than a decade and who was very popular among the masses, but it has not made a major impact on the status of women in our country.

Every year, 1.2 crore girls are born in India. 25% of them do not live to see their 15th birthday. the larger number of female deaths in early childhood results in 105 boys per 100 girls by age four. The recent sex ratio (females per 1000 males) is 933. Only Kerala in India has 1032 women per 1000 men. On the other hand, there are 835 women per 1000 men in Sikkim among the States and only 760 women per 1000 men in the

Andaman and Nicobar Islands, among the Union Territories. India, Pakistan and Bangladesh alone among the nations of the world have sex ratio adverse to women. Life expectancy for females is also a meagre 52.1 years which is less compared to that of Japanese women which stands at 80.1 years. Despite improvement in the economy and provision of basic services in India, the sex ratio has been deteriorating. From 972 in 1901, it dropped to 933 in 1981. Girls as compared to boys are at greater risk of dying during infancy in Haryana, Jammu and Kashmir, Punjab, Rajasthan and Uttar Pradesh.

What is worse, India is a country where the discrimination begins right from the mother's womb The use of amniocentesis and sex-determination tests is also a curse to the female child. By this test, one can know whether the child present in the womb is a male or a female. Sex-determination and sex-preselection tests have come in virtually as a boon for those who crave for a male child In a single year 1984, 40,000 female foetuses were aborted following amniocentesis tests in Bombay alone.

Those girls who survive the maladies of foeticide and infanticide become victims of malnutrition and disease. More than two-thirds of India's female children are malnourished, growing slower, smaller and with more frequent illnesses than their fortunate male peers. She is never given proper food and made to work as she is considered a burden on the family, because during her marriage her father has to give dowry to the bridegroom. As a result, child marriage is common in most northern states. In some districts of Rajasthan, over 45% of 10-14 year old children are married Bihar, MP, and UP also account for about 50% of girls who are married off before the age of 16. Child marriage affects both boys and girls However, for girls it is more dangerous since marriage means premature domestic and child care responsibilities. Often the high infant mortality rate resulting from this provides the impulse for further pregnancies which result in even further physical depletion. When the girl herself is not mature enough to understand herself fully, how can she bear the responsibility of looking after her children herself? The years when she should be playing with her friends, running about in a carefree way, playing the games children play, she actually spends coping with the trauma of pregnancy, the pain of giving birth with a few or no facilities at all She endures all that pain and torment all alone, her body still too weak, too tender to bear such agonies.

As a former French Minister of Public Instruction, Mr. M. Paul Bert said, "By educating a boy you get an educated individual by educating a girl you can get an educated family." But in India educating a girl would mean spending money on her. Her parents would surely like her to work and procure some money but will not like to 'waste' money on her education as she is going to be away from them very soon. The girl child in India has a very limited access to school, especially the rural female child. The benefits of education have been still out of the reach of the rural females. If at all she gets enrolled in school, she drops out (or made to drop out) very soon, unable to cope with both school studies and her domestic chores In the Constitution, woman has the right to equal education Practically, the equation is totally different. Generally, a girls' education is considered to have no utility. At home, a girl child has to do all the domestic work, i.e. washing clothes, cleaning crockery and vessels and cooking. The domestic work is a part of a girl's life in middle class families. In poor families, she has a lot more to do. Sexual exploitation of the girl child takes place everywhere, whether within the family or outside it. Girls often in their teens are exposed half-nude in an advertisement for an article which has no relevance to a woman. She is also exploited by the so called 'film-makers', 'advertising agents' etc. who reduce her life to shame and often she commits suicide.

The media in our country, specially the visual media, can help in bettering the status of a girl child. But with a few exceptions, it has not done anything for them till now. Perh the declaration, of the year 1990 the 'SAARC year of the Girl Ch might improve the situation of girl child. This year can be our gol opportunity to undo the p damages. We should try and rec the damage, initiate new ideas a programmes, give her, first of all, right to life, right to equality, etc. must free her from the conventio ideas that girls are physically we that they cannot do this or that, that her ultimate aim in life is to married and to have a son or t girls are inferior to their m counterparts.

The girl child should be give chance to study, to play, to impr her health, and improve personality as a whole. Proper car the girl is important not only for own sake but for our society's fut as well. The health and nutrition the girl today will affect the hea and survival of the future generati because she is the mother tomorrow and no future can be b on an edifice that is not strong a healthy and which is corroded w discrimination and injustice at ev level. We have to make people aw of this so that we can improve situation for her and oursel Allround improvement or progr of a society can come only w women get a better deal, when t get a better position in society, a when they get an equal opportun to work and advance themselves

There are anti-dowry laws; la giving women equal rights to fam property as the male; femin lobbying intensely for women's ri and social scientists and exp waxing eloquent at elite seminars a discussions on the role of women i changing society. But down in rural pockets, ignorance a illiteracy still reign supreme In f everywhere poverty and ignora co-exist. Women battering, rape dowry deaths that plague our soc are crude realities of today's Ind That 43 years after Independe these practices still prevail is indication of the abject failure of State and Central governments ensure economic uplift of the nee

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Drive Against Illiteracy : Quest For A New Approach

Dr. N. Ashirvad

BESIDES poverty alleviation and development of agriculture, literacy drive should have a new thrust in the Eighth Five Year Plan. This is because literacy increases people's capacity to cope with the demands of living and working. "Education is the key to the future and literacy is the most essential of education skills", says Mr. Federic Mayor, Director General of the UNESCO.

It is unfortunate that India is one of the countries which has very low literacy in the world. Along with Afghanistan, Bangladesh, Nepal, Pakistan, Egypt and other backward countries, India is one where literacy percentage is below 50. There are more uneducated in India than in any other part of the world, their number now crossing 500 million. The literacy level was 5.3 per cent in 1901, 16.7 per cent in 1951 and 36 2 per cent in 1981. Between 1901 and 1981 the number of uneducated increased from 222 million to 424 million. As per the study conducted by World Bank, India will account for half of the total uneducated people of the world by the turn of 21st Century

While the all India rate of literacy is 36.2, in some States, it is lower. To cite a few examples, Arunachal Pradesh has 9.34 per cent literacy and Jammu and Kashmir 18.3 per cent. Again, literacy among women in Rajasthan is 11.42 and in Bihar, UP and Jammu and Kashmir it is 13.62, 14 04 and 15.88 respectively. It has also been observed that millions of uneducated concentrated heavily among the SCs and STs

As stated earlier about 65 per cent of the people cannot read and write Educational facilities obtaining in rural areas are far from satisfactory In fact, they are very nominal Of the nearly 90.58 million households in the villages nearly 34.85 million or 38.48 per cent have not a single literate member This is the state of affair prevailing in rural India where about 80 per cent of our population lives

A Blot

The goal of universal free primary education to all children between 5-14 has therefore been enshrined in Article 45 of the Constitution. It is already more than four decades since this was done, yet there has been not much improvement in the situation Instead it is going from bad to worse Even 38 years of planned development has not changed the position, especially in the fields of primary education and adult education Paradoxically enough, while knowledge explosion is taking place in dynamic dimensions, across the globe, the expenditure on education in India is deemed to be social service expenditure rather than an investment on human capital formation.

Primary education which is the bedrock of literacy has been neglected in the previous plan allocations Higher education was given priority Higher and professional education if it has to justify itself, needs to be improved in terms of quality and not given undue priority at the cost of primary education In the First Five Year Plan, the percentage of funds allocated to elementary education out of total funds earmarked for education was 56 per cent It was reduced to 35 per cent in the 2nd Plan, 30 per cent in 3rd Plan, and 28 5 per cent in the 4th Plan. When primary education was made free and compulsory to all children between 5-14, the enrolment rate of pupils increased from 98 to 100. However, it could not stop the fall of drop outs Among those enrolled in elementary schools, only 30 per cent could continue their studies upto the 5th standard.

During the period 1950-51 to 1960-61 the growth of primary education was 6 2 per cent. By 1970-71, the rate of growth was 5 per cent and in 1980-81 it came down to 2.5 per cent. The goal of universal, free and compulsory education would have been realised by 1960, but even by 1990 the target remained unrealised.

When the education policy was reviewed in 1985-86 a few important gaps were identified and remedial measures were proposed. One, elementary and adult education was neglected. Two, secondary education needed to be vocationalised as

recommended. In terms of priorities one cannot disagree with what was agreed upon.

Eighth Plan

Against such a background of mass illiteracy in the country, the attempt to eradicate it is a tremendous challenge before the Government. It is a matter of relief to hear from those connected with the 8th Plan making process that the government is contemplating to allocate six per cent of the national income for education by 1995. And that too with special thrust on primary and secondary education.

In this context, the government has to take note of the reasons for the drop out of pupils in large numbers at the elementary school level. The important reason is that many of the poor cannot afford to keep their children at school, because a child's labour is productive and helpful to the family. Therefore, education will have to be tuned to the needs of village life. As the poorest of the poor come from rural India, to draw them to the light of literacy there is need to give mid-day meal or snacks to the children. It would be a cooperative endeavour, which would not only wipe out illiteracy but also provide the first plank to abolish unemployment and eradicate poverty. Again despite some shortcomings the "Operation Black Board" scheme may be continued.

Electronic media may be utilised to take education to the doorsteps of villagers in the remote areas. Radio and television transmissions could be made use of for this purpose. Some expenditure will have to be incurred in preparing Radio and TV lessons in local languages, to make education more meaningful.

The Government should suitably amend the Constitution and give the status of fundamental right to Article 45 of the Constitution which underlines universal, free and compulsory primary education to all children between 5 and 14. Currently this Article is only a Dir[...] Principle of State Policy. G[...] learning the status of the righ[...] result in due course in wipin[...] illiteracy from the country. Lit[...] in its turn brings political awar[...] among the masses which is prerequisite of the success [...] democracy.

If the Government thinks th[...] endeavour is not enough to me[...] challenge of illiteracy, it can [...] leave the entire primary and [...] education sectors for adoptio[...] voluntary agencies or indu[...] entrepreneurs through incentive[...] tax holidays and tax rebates. [...] measure short of these will b[...] exercise in deception and dupl[...] The Government should pause [...] ponder over inducting the rig[...] learn in the Constitution [...] fundamental right.

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Education And Income Profiles

Dr. P.V. Bhaskaran Nair

For the development of the country, innovations in various fields are essential. Without higher education and research, innovations are not possible. The author says, investment in research for Ph.D. seems to be quite justifiable. He also points out the indirect spill-over benefits to the nation and the individuals as a result of research.

A good deal of resources are invested in University education, but the benefits to the individual and society as a result of post-graduate and doctorate degree have not been fully analysed. Investments are made without knowing full well the life-time earnings and other benefits as a result of education at a particular level. It is very useful not only to the individual or his parents but also to the Government to have an idea of the benefits derived from the investment on education of the individual.

Even though there are several studies on the cost of education, there are not much on the life-time earnings and the earning differentials due to graduation, post-graduation and doctorate degrees

In this article an attempt has been made to present the estimates of the life-time earning differentials of persons as a result of post-graduation (M.A / M.Com. and M.Sc.) and Doctorate degree (Arts and Humanities and Science) according to profession.

Data And Sample

The study is based on the primary data collected in 1986 by means of a pre-tested questionnaire. The sample of 1,411 people for estimating the benefits of post-graduates and doctorates consisted of those who passed out from the University Departments of the Universities of Calicut and Kerala with M A./ M.Com. and M.Sc. and Ph.D degrees in Arts and Humanities and Science and employed in different organisations in 1986 For collecting data of graduates, persons with B.A./B.Com. and B Sc. qualifications, employed in major offices in Calicut, and who took degrees from colleges affiliated to the Universities of Calicut and Kerala were selected

Using the observed data on annual earnings collected by the author, age-education-earning profiles have been first constructed. These are then improved by adjusting the annual earnings for unemployment factor based on the waiting period to secure employment All persons selected for the study were found absorbed in service within 6 years. From these adjusted age-earning profiles of graduates and post-graduates, the profile of age-earning differentials, i e. the additional earnings as a result of post-graduate education, has been worked out This has been adjusted for 'alpha co-efficient'. Similarly, from the age-earning profile of post-graduates and doctorates, adjusted for unemployment factor, another profile of age-earning differentials, i e. the additional earnings as a result of research for Ph.D., has been obtained and this has also been adjusted for alpha factor.

Estimate Of Earnings

Even though four different types of profiles have been constructed using the primary data collected from the sample individuals, only two profiles, viz profiles of age-education-earning differentials and profiles of age-education-earning differentials adjusted for alpha co-efficient are discussed to avoid lengthy presentation

The differentials during the initial stages of employment of persons possessing different qualifications are negative except in the case of those with doctorate degree in Arts and Humanities. For all age-groups, the earning differentials are positive

from the age of 30 till the age of retirement, except in the case of non-teachers with M.A./M.Com. qualification whose differentials are negative at the age-group of 41-45. Among the post-graduates, the maximum differentials are in the age-group of 51-55 which come to the extent of Rs. 15,244.64 for non-teachers with M.Sc. degree though they are as low as Rs. 7,459.80 for teachers with M.A./M.Com. degree.

A striking feature noticed is that whereas the differentials amount to as high as Rs. 15,244.64 at the age-group of 51-55 in the case of non-teachers with M.Sc. qualification, they are only Rs. 9,817.92 for the teachers with the same qualification. This trend is noticed throughout the career of individuals with M.Sc qualification when their earning differentials are positive except at the age of 26 and the age-group of 41-45 But a different picture emerges from the trend of earning differentials of the individuals with M.A./M.Com. qualification. The earning differentials of the non-teachers with M.A./M.Com. degree are much less than those of the teachers with the above qualification in most of the ages. But for the last two-age groups (46-50 and 51-55) the differentials of the former, showing an unusual trend, go up to Rs 9,982.80 and Rs. 15,065.88 respectively. At these age-groups, the differentials of the teachers come to only Rs. 5,826.24 and Rs. 7,459.80 respectively. Another notable feature is that the earning differentials of the Ph.D. degree-holders belonging to both the faculties at the age-group of 51-55 are comparatively low. But considerable differentials are noticed in the age-group of 56-60. Teachers with Ph.D. degree are assumed to continue in service beyond the age of 55, up to 60, as most of the Ph.D. degree-holders are found working in the University Departments where the retirement age is 60. Teachers with M.A./M.Com./M.Sc. qualification are assumed to retire at the age of 55 because majority of the teachers with these qualifications are found working in colleges where the retirement age is 55. The earnings of M.A./M.Com./M.Sc. degree-holders in the age-group of 56-60 are, therefore, accounted by their pension whereas the earnings of Ph.D. degree-holders are accounted by their salary which naturally shall be much more than the amount of pension for M.A /M.Com. degree-holders. The earning differentials in the age-group of 56-60 is, therefore, much higher than those in the age-group of 51-55

The earning differentials adjusted for alpha factor become positive in respect of all persons in teaching and non-teaching professions with different levels of education from the age-group of 31-35 till the end except a long exception (i.e. non-teachers with M.A./M.Com. degree at the age-group of 41-45).

Comparison

A comparison between the earnings of persons in teaching and non-teaching profession with M.A./M Com qualifications brings out the fact that there is a glaring difference in their earnings. At all ages from the age of 26 to 41-45, the adjusted differentials of teachers are much more than that of the non-teachers. However, during the later years (i e 46-55), the adjusted differentials of non-teachers are higher than those of teachers This may be attributable to the fact that most of the individuals in non-teaching professions get senior positions in the later years. But a comparison between the earnings of teachers and non-teachers with M Sc. qualification seems to present an altogether different picture Here, the adjusted differentials of non-teachers are much higher than those of teachers at almost all ages except 26 and 41-55. This may be due to the fact that the salary structure of non-teaching staff in those professions requiring M.Sc degrees especially in scientific and technical institutions is better than those of college teachers with the same qualification A glaring difference exists in the adjusted differentials of non-teachers with M Sc and M.A./M.Com. degrees at alomost all ages. This may be because persons with M.Sc. degree are generally well placed in various professions compared with those with M.A./M.Com. degrees. In the latter case, most of them work in lower positions as Assistants/Clerks especially in the earlier part of their career.

It was found that most of the doctorate degree-holders are engaged in teaching profession. The data indicates that the adjusted differentials of teachers with Ph.D. (Arts and Humanities) degrees are much less than those of the teachers with M.A./M.Com. degree except at 28 and 56-60. This strange phenomenon can be attributed to the fact that most of the teachers with M.A./M.Com might have joined service earlier than Ph.D. degree-holders and by the time the latter joined the service, the former might have secured increase in pay by annual increments or promotions More or less the same phenomenon is noticed in the case of teachers with Ph.D. and M.Sc. degrees. The arguments for having more differentials for teachers with M.A./M.Com than those of teachers with Ph.D Degree in most of the age-groups hold good in the case of M Sc and Ph D degree-holders in teaching profession

Conclusion

The study clearly brings out the earnings of persons with B.A B.Com. and B.Sc., M.A./M Com. and M Sc. and Ph.D. (Arts and Humanities) and Ph.D. (Science) degree employed in different professions and also the earning differentials as a result of post-graduate education and research for doctorate

It is observed from the study that the additional earnings as a result of doctorate degree are much lower than those of post-graduate education. So, from the economic point of view alone, investment on research for doctorate cannot be fully justifiable. However, the indirect spill-over benefits to the nation and the individuals as a result of research for Ph.D. are also to be taken into consideration.

For the development of the country, innovations in various fields are essential. Without higher education and research, innovations are not possible. So investment in research for Ph.D. seems to be quite justifiable from this point of view.

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The Agni Story

Dr. A.P.J. Abdul Kalam

The Missile Programme is our national effort. Various institutions and industries are partners in this high technology endeavour. The multi-project environment has thrown many challenges to meet required results. This piece focusses on "Missile Programme—Technology and Management". It presents the major decision which shaped the Missile Programme, multi-organisation partnership in AGNI, meeting the challenges from developed countries and aiming at technology firsts through a research center. Finally a new concept of Hyper-plane is putforth to the aerospace community.

THE Indian Missile Programme was based on the missile requirements for the three Armed Services with specific performance needs, cost and time schedules. The programme not only calls for the development of the missile systems but also leads into concurrent production. I would like to think that the tone and spirit of the Programme set from its very birth and the way in which it was sanctioned by the government, was itself an indicator of the national will to excel in this crucial area. In 1983, the laboratory already had a good base in Liquid Engine Rocket Systems, Advanced Fabrication facilities, Inertial Guidance Technologies and System Design. Dr. V.S. Arunachalam, Scientific Adviser to the Defence Minister, formed the Missile Study Team with me and other members drawn from the three Armed Services and from Defence Production. This team presented its report within four months to Mr. R. Venkataraman, who was the Defence Minister at that time. The discussions resulted in firming up of performance requirements for five types of missiles. The whole team agreed that we should go ahead with the Guided Missile Development Programme.

It had three important features:

A) The missiles were to be contemporary and based on state-of-art technologies

B) Development and production were to be concurrent with limited series production.

C) Continuous participation of the user Services in the Missile Programme.

With six years of the Missile Programme sanction, PRITHVI, the Surface-to-Air short range missile and NAG third generation Anti-tank missile have been successfully tested and the technology demonstrator-AGNI-was also launched. Hence, the decision on integrating the multiple projects into a programme and simultaneous progressing resulted in dynamism in the Work Centres and healthy competition to use the available resources and above all the urge to draw the best from the country. Of course, this decision has offered a big challenge and we have taken it.

Partnership

The AGNI mission calls for the design and development of re-entry vehicle structure. For this type of mission, the payload gets delivered with hypersonic velocity. The AGNI system has a booster with solid propellant second stage with liquid rocket propulsion system and the payload with guidance electronics in a re-entry vehicle structure. The re-entry vehicle structure is meant to protect and integrate the payload and to keep the inside temperature within the limit of 40°c when the outside skin temperature is greater than 2500°C. An inertial Guidance System with on-board computer is a prime sub-system in the AGNI to guide the payload to the required target

In the launch complex, specialy built for AGNI System at the Interim Test Range, Chandipur, Orissa there are multiple radars and telemetry stations for tracking AGNI. The ITR Computer is networked with the Computer Centre at the Sriharikota Test Range (SHAR) linked through INSAT satellite system. Throughout the flight of AGNI, either ITR or SHAR Range was tracking the vehicle and communicating its parameters to the Mission Control Centre in real time. When the re-entry vehicle impacted, the data was obtained from shipborne tracking and telemetry stations and from stations at Car Nicobar. In all, over 500 channels of measurements giving real time information on the mission were monitored throughout the flight.

Working together with multiple organisations lead to sharing of experiences and technological strength and also overcoming problems. SLV3 booster is AGNI's booster. PRITHVI Rocket System is the second stage of AGNI. SHAR computer with radar and telemetry networked with telemetry and radar stations 1500 Km away through

computers at ITR, Chandipur. Air Force had provided operational support during the emergency and even the booster was airlifted 1000 Kilometres away to ITR. Army provided support in specialised areas, including the medical cover, since the work involved was with explosives, propellants and hazardous chemicals.

I have participated in many launch campaigns during the last three decades. But the AGNI campaign was something special, full of challenges—technical, managerial, social and administrative. We have reached the AGNI launch pad after about five years of continuous work at multiple work centres of DRDO other organisations like ISRO, CSIR, Industries and Academic institutions, Just 600 seconds of flight duration were to provide the culmination of the five-year-labour of 5000 engineers and staff. When there was a hold in the count-down by the check-out computer at T-7 seconds, the umbilical connector had already been pulled out. It had reached the point of no return.

During the second count down at T-11 second, one of the injection servo valves gave way, leading to leakage of secondary injectant. Detailed analysis of the component failure and rectification action were completed in a record time of 10 days. The AGNI mission thus had three launch operations. The type of problems revealed and solved can be attributed to reliable tools Hardware-in-loop simulation and the effectivness of automatic check out and count down systems, were the twin watchdogs.

At the ITR Range, for safety reasons, we had to evacuate about 12,000 people over 3.5 Km radius. A combined effort was made with the local administration to move people and give them proper shelter and food and make necessary arrangements for their safety. The press was very sportive, provocative and full of cartoons; AGNI IDBM (Interminable Delayed Ballistic Missile). Amul's famous cartoon said that' AGNI needed Amul butter as its fuel. The launch date was also getting dictated by hostile weather conditions, including a threatening cyclone. The launch took place within 20 days and the mission objectives were accomplished. In fact the cyclone hit the AGNI Complex the very next day.

Challenges

Missile Programme revealed that challenges could be thrown from many directions, some of them from beyond our shores. In 1987, a group of seven nations viz., USA, Canada, Japan, UK, France, West Germany and Italy announced what is known as Missile Technology Control Regime (MTCR). It is aimed at denying to countries, like India, critical technologies and hardware/software which will enable realisation of systems with long range missile capability. We had identified 5 critical and high technology products which are essential for our programme and which will not be available for procurement from abroad once AGNI class missile is launched. In fact, right in the early stage of our programme, we had anticipated an embargo on such items much before the MTCR was formally announced and had initiated developmental efforts in 1983 leading to production of such critical items. These items were Focal Plane Array (FPA), Millimeter Wave (MMW) Radar System, W-band Impatt Diode, 'C' Band Phase Shifters and Carbon-Carbon preforms. I propose to dwell briefly on the details of how in each case we conceptualised and implemented a consortium type approach to overcome the threat from MTCR like embargo. Consortium is a committed team drawn from various R&D labs., academic institutions and industries, to accomplish a difficult or strategic technology task to meet mission requirements in a specific time and also lead to production.

For a re-entry missile system 3D/4D directional preform is core material for making Carbon-Carbon nose tip products that will maintain high strength at elevated temperature above (2500°C). Only three other countries have developed such type of preforms. In 18 months time, four laboratories of DRDO and CSIR developed the required preform. In another project of surface-to-air missile system, a phased array radar is configured for tracking multiple targets and command-guiding multiple missiles simultaneously. This radar has multiple arrays and each array with several thousands of ferrite phase shifters at different frequencies. The radar beams are steered and controlled electrically in space by programming the Phase Shifters through computer controlled logics. We made a consortium to develop these ferrite phase shifters In IIT (Delhi), Prof. Bharathi Bhat's team designed and developed the Phase Shifter. Material to the specifications was provided by SPL, one of our DRDO Labs and the technology of phase Shifter was transferred to Central Electronics Limited (CEL), a production agency. Phase Shifters are produced Now regularly. We became self-sufficient in such a critical area.

Another technology of strategy is Focal Plane Array (FPA) sensor based seeker. FPA is used in Anti-Tank Missiles to detect temperature difference of even 0.1°C and guide the missile by imaging infra red technology. An area of 1 cm x 1 cm contains 10,000 sensor elements of Mercury Cadmium Telluride crystals coupled with similar 10,000 CCD elements (100 x 100). This FPA sensor is developed by the consortium of SPL and SCL.

Millimetric Wave (MMW) Seeker and Guidance System are based on W-band, 50 Watt transmitter. The critical element is design and development of monopulse antenna. The other element is development of 20 watts impatt diode. Both of them are in advanced stage of development. The devices and front end are developed by CEERI, Pilani, SPL, Delhi and DEAL, Dehradun. The antenna in W-band has been developed by DRDL and IIT Kharagpur and Osmania University are developing the signal processing algorithms. We belive three countries are developing this type of seekers, and we aim to be the first country to introduce this system for deployment. Infact, the consortium approach has become an accepted

norm in realising critical technology products.

Our aim is not only combating the MTCR, but to be a leading country in certain vital technology areas. In the Missile Programme, we have taken a modest step to ensure that some of our young minds also look towards Hyderabad. A few Kilometres from DRDL down a road which I would like to call our research umbilical, we have set up what we hope will become a special home of research. We call it RCI—Research Centre IMARAT—retaining the traditional name by which the land is known to the surrounding villages. At IMARAT, which our President inaugrated in August 1988, we have some of our most comprehensive laboratories for advanced work in inertial guidance, control and navigation, facilities for hardware-in-loop simulation and automatic checkout as well as a chain of "walk-in" environmental test facilities and missile integration centres. As a logical extension of this, closeby, we have also a joint sector venture—COMPROC - a facility for composites production where we will see the production of all the composites requirements of the missile programme as well as similar items of commercial importance based on DRDO developed technologies.

By the end of 1990, we expect that an Advance Technology Institute with participation from IISc faculty will also begin functioning at RCI where scientists can address futuristic technologies like Scramjet propulsion and terminal guidance and control and integrated design of aerospace systems.

But RCI we hope, is more than a high concentration of high technologies. Here we have a tiny scientists village with comfortable cottages where visiting scientists and academicians can stay with us a few weeks or months, exchange ideas with our own scientists and enrich us even as they enrich themselves. We also have a system of inviting Visiting Professors both from within the country and abroad, for short sabbaticals.

I would like to share with you one experience that has resulted in reversing brain drain to brain gain. Professor M. Vidyasagar, a well known Control System expert from Waterloo University, Canada, was invited by DRDL and he was with us for one year. (He was a Canadian citizen). He is one of the leading authorities in the field of non-linear control systems and Robotics. During his stay with us, our scientists, especially, those working in Missile Control and Guidance systems were highly enthused, motivated and benifited. At the end of his tenure, he decided to stay back in India and take up an important assignment as Director, Centre for Artificial Intelligence and Robotics (CAIR), Bangalore, a unit of DRDO This has already resulted in further movement of many young scientists from abroad Is it not brain gain?

One task which we expect will still engage us at the turn of the Century is our work on the Hyperplane. Space launches and transportation are on the threshold of an exciting new era The driving force for this comes from the economics of putting large payloads into space at minimum cost and clean exhaust engines The new concepts are based on merging space launcher and aeroplane characteristics. There are three configurations emerging on the international scene. They are based on the air-breathing propulsion concept, where the atmospheric air is used for combustion in turbo ramjet and Scramjet and rocket phases of propulsion There are three configurations on the aerospace horizon, at various stages of validation We conceived and evolved a new concept where in-flight mass addition was the novel feature This concept was presented at the International Astronautical Federation Congress at Bangalore in 1988 This concept has been named "Hyperplane"

With the help of air breathing engines, this would takeoff from a conventional runway and accelerate to orbital speed and altitude. During its endoatmospheric (22 Km to 28 Km) flight, it takes in atmospheric air, liquifies it and stores liquid oxygen in tanks specifically provided onboard, to be used by the Cryogenic Rocket engines in its final phase of acceleration. The Ariane-5, Titan-III, Proton and Space shuttle can inject a maximum of 3% payload in low earth orbit. It means that for 100 tonne takeoff weight, the payload is 3T. There is an urge in the aerospace community on how to bring down the cost per orbit for a given cost. Hotol of UK is designed for a capability of 5% payload and NASP of US, aims at 8%. Hyperplane will have the capability to inject 15% payload

The Hyperplane will provide us a challenge for the next 15 years. It can be made feasible only through breakthrough in advanced Fibre Composites, Ceramic materials, Cryogenic management, supersonic combustion and by achieving very fast and large computational power. This is a huge programme in terms of intellectual challenges and resources. It has to be a multi nation programme.

Missile Programme blessed with decision of multiproject environment, committed itself to the multi-organisational partnership It has the capability to combat the MTCR ordinated by developed countries. The programme has built ambience to set the goal and achieve technological firsts through the Research Centre IMARAT. As a first step we have putforth the concept of Hyperplane to the International Aerospace Community.

In the aerospace field, there are many challenging programmes in front of you for the decade We have to build our own passenger jet aircraft We have to launch our own geosynchronous Launch Vehicle from our shores and even a resuseable missile may become a reality drawn from Hyperplane technology. There are big aerospace challenges in the country and you young friends take the dreams into reality.

(This article is based on the Convocation Address at Kanpur IIT by Dr A P J Abdul Kalam, Director, Defence Research and Development Laboratory, Hyderabad)

Living conditions of Rural Poor : A study

Dr. Pothuluru & P. Yadagiri

Four decades of planning, the authors assert, have not brought the promised plenty. The rural poor have remained poor and the higher income group house-holds are placed in a more advantageous position. The cure for the malady, they say, lies in introducing measures such as redistribution of basic resources in favour of the poor, providing necessary inputs and infrastructural facilities. Their observations are based on a case study confined to one of the blocks of Nalgonda District, Andhra Pradesh.

THE rural scenario after seven Five Year Plans spreading over a period of almost four decades (1951-1990), with all the area and target oriented plans, welfare schemes such as SFDA, NREP, IRDP, DPAP and Minimum Needs Programme and protective discrimination in the form of reservations for certain categories of the population has been subject only to cosmetic changes. The socio-economic conditions of the rural masses majority of whom have still to cross the poverty line, leave much to be desired. Planning has not brought the promised 'plenty'. Agriculture with all its vagaries constitute the sole means of livelihood. Minimum needs such as education, housing, health-care and protected water supply remain distant dreams.

The present study tries to examine the widely held contention that there are wide disparities between different income groups. In this context there is need for examining the plight of the rural poor in terms of socio-economic and infrastructural facilities. The objectives set out in this study are:

- to study the socio-economic conditions of the rural poor and
- to assess the living conditions of the poor in terms of minimum needs.

Methodology

The study is confined to one of the blocks of Nalgonda district in Andhra Pradesh. It is based on primary data which has been collected through random sampling method. There are in all 73 villages in the block. Among them, nine villages have different socio-economic conditions. The poor households which have received assistance under various schemes allied to agriculture and ISB sectors of the IRD programme are taken as sample for the purpose of the study. A complete list of beneficiaries under selected schemes of IRDP is drawn up. Of the total, about 15 per cent, i.e., 120 households have been chosen. Among them 27 households possess more than 5 acres with higher income and assets. They are designated as ineligible higher income group households. These households are refered to as HIG households. The rest are poor families with marginal land holdings and low income levels. The data covering the living conditions of the poor and other families has been collected through personal interview.

The level of literacy is treated as an important indicator of social development. The block has registered a literacy rate of 21.1%. This is lower when compared with the State figure of 23.2%. Universalisation of elementary education is the objective of the Minimum Needs Programme, i.e. 100 per cent enrolment in group 6-14 and coverage of th under non-formal education b The sample data in the area st indicates that the incider illiteracy is more pronounced the poor households (57%) pared with HIG households few poor households have upto primary level (8.8%). other hand, a significant pro of HIG households (68% studied upto primary, second above levels. It may be cor that poor economic condition families in the chosen block, p them from pursuing ed beyond primary level.

The sample household stratified into broad caste

which denote their social status. The sample under study shows that illiteracy is the highest among the poor families (88.2%).

The age structure of the sample poor households shows that about 43 per cent are in the school going age group (upto 14 years) which reflects higher dependence on the active population. The active labour force represents only 56% of the total and the rest are in old age groups. The large size of skilled and active labour force is a key factor in increasing production and employment potential

The average family size of poor households is 5.3 members which is relatively higher than the other households (Table 1). The majority of the poor households have 5 to 8 members in their families. This shows their backwardness and lack of foresight in adopting birth control methods.

The economic life of the people in the block revolves round agriculture and allied activities. Of the total poor households, majority of them have agriculture as their main occupation. By and large all the HIG households have agriculture and government service as their main and subsidiary occupations.

Economic Conditions

The HIG households have land holding ranging from a minimum of 5 acres to a maximum of 40 acres of dry land, with an average farm size of 29 acres. In contrast, about one-third of poor households in the area surveyed have been reported as landless The rest of 44% and 25% of households possess below 2.5 acres (marginal farmers) and 2.5 to 5 acres (small farmers) respectively. However, the average farm size is 3 acres in the case of poor farm households

Apart from land, the other assets also reveal the social and economic status and the living levels of the rural poor The total value of assets include land, house, agricultural implements, household utensils etc. By and large, all the poor households possess less than Rs. 20,000 worth of assets, whereas, a significant proportion of HIG households have total value of assets, with a minimum of Rs. 40,000 and a maximum of Rs. 2 lakh and above

By and large, all the sample households show expenses more than their income which implies that they are in debt The average debt per family is Rs. 2263. About a little above one-third and two-third of poor households are in the range of debt below Rs. 1000 and Rs. 2000 to Rs. 5000 respectively. It is a fact that the majority of rural people incur debts not due to poor earnings, but also due to spending more on social functions Compared to this, one-third of HIG households possess debts to the tune of Rs. 50,000 It indicates that these families are able to mobilise financial resources from various sources and invest in income yielding ventures

The various sources of income of the sample respondents show that agriculture is the major source (19 89%) of income to the poor households, followed by income from artisan trade (17 8%) agricultural wages (14.81%), government service (15 25%), petty business (19 9%), service (0 4%) and other sources (8%). In contrast, the HIG households derive nearly two-thirds of total income from agriculture, just less than one third from government service. The income from agriculture wages is negligible for them, since these households possess better means of production to earn sufficient income.

The avarage annual family income from all sources of poor households is Rs. 4,059 while it is Rs. 6,960 in the case of other households The per capita income of other households (upper income) is Rs. 1372 which is more than double that of poor households (Table-I) The national per capita income for the year 1983-84 was Rs. 2180 and for Andhra Pradesh it is Rs 1965 Thus the per capita income in the study area is lower than the State average and far below when compared with all India figure

Per capita income is an indicator of the level of living of the people. By comparing the per capita income with the minimum requirements of a family to meet the necessities of life, we can understand whether a family is above the poverty line or below From the sample survey it is found that about 58 per cent of poor households are living below poverty line

Table : 1

Some Indicators of Socio Economic and Minimum Needs

	Items	Poor Households	HIG Households
A)	**Social Factor**		
	i) % illiterates	88 2	33
	ii) % of BC, SC & ST	57%	32%
	iii) Average family size	5 3	4 6
B)	**Economic factor**		
	i) Average farm size	3	29
	ii) average value of assets (per household)	27,631	75,340
	iii) Average debt (in Rs per household)	2263	5,370
	iv) Average income in Rs per household	4059	7960
	v) % below poverty line	58 0	15 0
C)	**Minimum needs**		
	i) Average amount spent on housing	7,500	32,500
	ii) Average amount spent on clothing (per family per annum)	352	790
	iii) Average amount spent on consumption (per family per annum)	275	450

Living Conditions

Housing satisfies the basic need next to food and clothing. A certain minimum standard of housing is essential for healthy existence. Housing in rural areas means shelter with proper facilities of sanitation and drinking water. According to the Minimum Needs Programme, it is proposed to provide housing to all weaker sections, particularly the landless households by 1990. The housing facilities are far below the minimum in the case of rural poor households in the area surveyed. Four family members are sharing one room in the case of poor households. Nearly one third of the HIG households have constructed their houses with brick walls, RCC roofing and cement flooring. In contrast, almost all the poor households have constructed their houses only with mud walls and tile roofing. Further, it is also noticed that the majority of these families do not possess a separate kitchen. A part of living room is converted into a kitchen.

Under the Minimum Needs Programme, it has been decided to electrify by 1990 at least 60 per cent of villages, particularly those belonging to weaker sections. The present survey reveals that only a few houses of poor families are electrified whereas a significant proportion of HIG households have been enjoying this facility. Nearly one third of upper income households in the areas surveyed possess sanitation facilities within their houses whereas not even one poor family has the advantage of such facilities.

About one-third of the poor households possess only a pair of clothes and a few possess two pairs. The rest of the members of the poor families are not able to meet even the basic needs. Half of the HIG families possess a minimum of three pairs of dresses and even more.

Regarding the type of cloth used, only one-fifth of the poor families are using mill or synthetic type of dress meterials, and the rest have been using locally produced handloom cloth. At the same time a significant number of HIG families are using synthetic mill cloth as their dress material.

The survey reveals that HIG households have more access to the comforts of modern life, compared with the poorer ones. A majority of HIG families have cycles, radios, wrist watches and fans. Only a few poor families have cycle and wrist watches.

Ther extent of deprivation of the rural households in the area surveyed can be studied according to the possession of a few durable and useful goods. About one-fou HIG households have been steel utensils for cooking and purposes. Such articles are spicuous by their absence in families. This implies that b large, all the rural poor famil utilising only earthen ware or aluminium utensils for v domestic needs.

About one-third of the households depend on Ayu medical treatment and the r them on allopathic. HIG fa avail of only allopathic trea The survey confirms that the poor have remained poor, poorer. It has also revealed th higher income households are in a more advantageous po The cure for the malady l introducing measures like re bution of basic resources in fav the poor, introduction of structural facilities like ade rural finance, rural marketin work and rural roads, alon conscientization of the rural These will take the rural poor a one step forward towards the g planned development along socio-economic justice.

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Domalguda, Hyder

(Contd. from page 14)

The government should enforce strict punishment for sexual crimes, ban Amniocentesis, sex determination and sex-preslection tests, ban female infanticide, ensure protection of the girl child's right to life and see that the girl child is treated as the equal of her male counterparts. Education should be made compulsory and free till the high school level. Primary and Middle schools should be there in every village of India. The government should reserve some percentage of seats for women in government jobs. It should see that prostitution and 'Devadasi' system is banned, that rehabilitation of prostitutes and their daughters ensured exposition of women in advertisements, films and media stopped, strict implementation of the Dowry Prohibition Act enforced, women have all the rights that men have including the right to property, and the young girl is allowed to learn, to play and grow up as an individual. The Press and Media, especially visual media should make p conscious of the important rc women in the development of a India.

Last but not least, the p coined by the SAARC committ commemorate the 'SAARC ye the Girl Child' says "CARE THE GIRL CHILD" Will it true for the future fe generations?

Measures To Tackle Unemployment Problem

N.M. Panda

The author examines the problem of unemployment in Nagaland which, he says, has assumed serious proportions. He comes forward with several suggestions to tackle this problem on a war-footing.

THE main objective of our economic policies, right from the First Five Year Plan has been the provision of increased employment opportunities. Recognising this, the Nagaland Government gave due priority to creation of employment opportunities since it came into existence. In spite of State intervention, the problem of unemployment in the State has come to the surface in a more pronounced manner. Several measures to alleviate this problem are being taken to provide employment to the needy to pave the way for achieving economic growth with employment and social justice. In the present article an effort is made to analyse the problem of unemployment by means of the demand and supply of the working force in the State.

Demand

In Nagaland, the most important reason for the demand of increased employment opportunities is the rapid increase in population. The annual rate of increase in population was around 4% during the period 1961-1971 and around 5% during 1971-1981. The accelerated population growth in Nagaland due to high birth rate and migration, low infant mortality ratio and high longevity of the people causes annual addition of nearly forty thousand people to the existing population. Increase in population inevitably causes an additional supply of labour and rise in dependency ratio.

The general level of literacy has gone high at a faster rate, from 27.4% in 1971 to 42.57% in 1981. The student strength in post graduation, graduation and general schools has gone up at an average annual rate of 4.07%, 14.4% and 6.61% respectively, during 1979-80—1986-87. The same period recorded a high percentage of average annual rate in the result of different examinations. This rate is around 13% for post graduate examinations, 30% for graduation examinations, 20% for pre-university examinations and 35% for matric examinations. Every year more than a hundred technical persons come out of the educational institutions. After school and college education, the Naga students are reluctant to go back to their respective villages either to start agricultural farm of their own or to work in their family farms. They dream of white collar jobs and remain unemployed for a long time.

Another reason that has contributed to this problem is the low rate of absorption of labour force by the primary sector and less development in the secondary and tertiary sectors. In Nagaland, agriculture is the very backbone of the economy and a source of large-scale employment. The technology employed by the people has remained primitive both in agriculture and allied activities due to various reasons, economic, geographical and social. Land-holding statistics reveal that 67.98% of the number of holdings are small, 30.13% of the holding are medium. Only 1.89% constitute large holdings. People having small holdings, are not able to maintain their livelihood in a self-sufficient manner and want to undertake some other remunerative jobs, particularly in the off season.

Many educated youngmen, who are able to find job opportunity outside the State are not willing to go out because of their attachment to the family and community. There is also less mobility of labour among the districts of Nagaland.

Supply

During a period of six years, i e. 1980-86, only 8,400 and 300 jobs were created in the public and private sectors. The percentage analysis shows that female participation in employment in both the sectors had increased. Sexwise distribution of employees during the period 1967-1986 indicates that the number of female employees is increasing but their percentage to the total number of employees is not satisfactory.

Naga and non-Naga—wise classification of government employees is

necessary to examine the quantum of employment opportunities offered to non-Nagas. In 1967, the percentage of non-Naga employees among Cl-I and II categories was 50% and 56.44% respectively. The percentage declined significantly during the period 1967-1986. In 1986 it was 29.59% and 25.44% respectively. The high percentage during the period just after the Statehood was due to non-availability of technically qualified persons for posts of doctors, engineers, science teachers, stenographers, etc. In due course, through man-power planning, the State could bring up the required technical persons to fit in such posts.

Comparison between the demand and supply force of employment in the State is very difficult. However, a bird's eye-view of both the forces shows that the former is having a higher magnitude than the latter. The percentage of non-workers to total population has gone up from 49.25% in 1971 to 51.77% in 1981. The percentage went up from 49.62% to 65.03% over the decade. In rural areas the percentage of cultivators has declined from 43.52% to 42.29% which indicates that due to high man-land ratio, some of the rural population are deprived of employment opportunities in their own field. Again, the percentage of agricultural labour has declined. Since the percentage of non-workers in rural area has remained almost unchanged it can be said that the rural unemployed have migrated to urban areas in search of gainful employment and caused increase in the magnitude of unemployed force in urban Nagaland.

Magnitude

The magnitude of the unemployment problem in Nagaland can hardly be measured. However, an effort is made to highlight the magnitude through some of the related indicatiors. The percentage of non-workers to the total population has gone up from 49.25% to 51.77% during the period 1971-81. The pressure of job seekers is also increasing at a very high speed. The total number of persons registered in 1980 was 3341, and 5122 in 1987. The increase is particularly in the case of graduates (56.71%) and pre-university students (26.50%). Most alarming is the number of matriculates which has almost been doubled during the last seven years. (Table 1)

There are many others, who have not registered their names in the employment exchanges, perhaps because of lack of faith in their services

Suggestions

The emerging problem of unemployment in Nagaland poses a threat to the socio-economic development and needs to be tackled in a big way. Since the problem is more acute among the educated class, its social impact is greater than the economic cost. The problem is going to be aggravated with the universalisation of school education and promotion of higher education. The State has to take certain short term as wel as long term measures. Included in the s[illegible] term measures are streamlining employment information system raising its efficiency, encouragen[illegible] of regional mobility, promotio[illegible] village and small scale industries development of work and orienta[illegible] centres. The long term meas[illegible] includes rapid industrialisation population control. Some of t[illegible] points are elaborated within context of the changes suggested solving the problem.

There is need for comp[illegible] reorientation and remodelling system in a way to suit the social up and the economic needs of State. The curriculum at the lo[illegible] levels should be shaped in a man[illegible] likely to inculcate a labour bias in students. Vocational counselling [illegible] guidance services should be dev[illegible] ped to advise young men to cho[illegible] vocations according to employm[illegible]

Promotion and development small scale and village industries [illegible] play a significant role in the creat[illegible] of job opportunities. Suitable st[illegible] should therefore be taken to prov[illegible] infrastructural and marketing fac[illegible] ties to youngsters to ensure that t[illegible] go in for self-employment rather th[illegible] seeking a white collar job in [illegible] traditional fields. It calls for a chan[illegible] in the social attitude and ta[illegible] particularly in giving high soc[illegible] status and recognition to se[illegible] employed persons.

A. positive social attitude necessary . to develop regior[illegible] mobility among the educated Nag[illegible] This will help to match the surplus a particular category of labour for of one place with the demand arisi[illegible] elsewhere for the same. Educate[illegible] competent and skilled Naga youn[illegible] men should not confine themselves the employment market of Nagalan[illegible] Instead, they should seek jobs fro[illegible] the national and global job mark[illegible] Efficiency in employment inform[illegible] tion system can play an importa[illegible] part in the mobility of labour for[illegible] within as well as outside the State. T[illegible] be effective in assessing the corre[illegible] position of the problem and t[illegible] disseminate relevant and quic[illegible] information, the system shoul[illegible] function at the block-level.

(Contd. on page 31)

Table 1

Qualification-wise Registration in Employment Exchanges

Year / Qualification	1980	1987	Average Annual % increase.
Post graduate	9	23	22.22
Graduates	33	184	56.71
Pre-university	117	334	26.50
Matriculates	714	1493	15.59
Below Matriculates	2468	3108	3.70
Total	3341	5122	7 62

Source: Statistical Handbook of Nagaland 1984-87.

Ladakh : Good Prospects of Pashmina

Dr. Prem Singh Jina

THE finest quality of Pashmina Wool comes from Ladakh. The Pashmina fibre is obtained from the domesticated goats in the Chang-Thang region of Ladakh, spread over an area around 21,000 sq kms. Chang-Thang region presents a picture of deep and narrow valleys between the gigantic mountain ranges of the Himalayas. No part of Chang-Thang is below 12,000 ft from the sea level. Most of the inhabitants live at an elevation from 12,000 to 15,000 ft

Due to the peculiar climate and rugged soil conditions, and barren parent rocks, Chang-Thang experiences practically very little rain fall, around 100 m.m. a year Agriculture and allied activities are meagre The main profession of the people is cattle-rearing.

There are over 1,50,000 Pashmina goats in Chang-Thang area of Leh district. Production of Pashmina wool is about 31,000 kg. per year. The earnings from Pashmina are more than Rs. 2 crores. Details of annual Pashmina wool production from 1981 to 1989 are given in the following table.

Table : 1

Pashmina Wool Production in Leh District

Year	Qty (in kg) App
1981-82	20 550
1982-83	18,255
1983-84	21,000
1984-85	20,000
1985-86	25,000
1986-87	28,000
1987-88	30,250
1988-89	31,000

It can be observed from the Table that Pashmina production was comparatively low during 1982-83 and 1984-85 This was because of heavy snow-fall in Nayoma Block and consequent heavy mortality of Pashmina

Prospects

Prospects for development of Pashmina wool in Ladakh are good in view of the following reasons

- Ladakh has a large area, with huge mountain ranges The alpine pasture can be utilised to graze sheep and goats. This area is not suitable for any cultivation or industries. The land can therefore be fully used for the development of goat and production of Pashmina.
- The soft Pashmina fibre available in Ladakh is of the best quality and has good demand in the market.
- Pashmina goat can be bred only in an environment where cold temperature (i e. -10°C to +5°C) is coupled with dry environment The genes responsible for production of Pashmina fibre in the goats can materialise only when there is cold and dry weather condition Ladakh satisfies all these requirements.
- Changra breed of Pashmina goats is highly acclimatised with the environmental conditions and can survive with the minimum available fodder.
- Pashmina has good market in Ladakh itself There is scope for the private sector to step up the production of wool

The Jammu and Kashmir government has set up two goat farms to boost the yield and quality of Pashmina These are at Nemo, at the confluence of the Indus and Zangskar rivers, and Upsi on the Manali road. The Upsi farm has been able to improve the average yield of a male goat from 300 gms to 500 gms. and that of a female from 200 gms to 300 gms per year. Veterinary facilities provided by experts at the farms as well as grazing sites have brought down the mortality rate from over 40% to less than one per cent

India ranks fifth in the world market in the production of Pashmina wool (35 tonnes) next to Iran 2000 tonnes, Mongolia 1000 tonnes, China and USSR 750 tonnes each However as stated earlier, India's Pashmina wool is reputed for its superb quality.

To boost the production of Pashmina wool, the following steps would be helpful.

- Setting up a processing and weaving centre in Ladakh.
- Construction of sheds for protecting goats and their young ones from severe winter
- Opening fodder banks in the Chang-Thang area at least during the winter season.
- Popularising fodder crops like Lucerne Bhuksub, Mlilotus, Therna, Timothy, Orchard grass (Phalaris tubrosa), Bromus, winter-wetch, Perennial Rye grass, White and Red dover and Cocksfort.

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Construction Workers

Panduranga Reddy

The author narrates the plight of construction workers in India. It is high time, he says, suitable steps are taken to redress the grievances they are groaning under.

A large part of the unorganised labour force in the country includes unskilled labour employed in various forms of building and construction activity. They are mostly landless or marginal or small farmers who migrate to the cities in search of work. They are not only migrant in the conventional sense of having moved from their original place of residence due to economic pressure but also extremely mobiles du... the conditions and problems of employment in the construction industry which is characterised by high turnover, use of contract labour, irregular employment, seasonal variability, dependence on supply of raw materials etc Some of the characteristics of this category are:

i. high economic vulnerability due to the combination of irregular and unstable employment and consequent high mobility on the one hand and their utilisation only in the lowest grade of job on the other;

ii. high proportion of female labour and frequent employment of whole family or couples;

iii. low capacity to utilise existing services because of high mobility; ignorance resulting from migrancy, lack of responsibility of civic agencies towards them as well as poverty, illiteracy, etc;

iv. low health status, particularly harmful to children resulting from hazardous, unsanitary and inadequate working conditions;

v. lack of organisation due to mobility and other reasons mentioned above; and

vi. lack of opportunity for training, skills upgrading or literacy and basic education for children.

In some of its operations, the construction industry resembles agriculture. It calls for strong muscles, requires outdoor work, permits reward by results, and encourages the concept of family employment and group labour.

The social organisation of the construction industry is based on village and caste factors. The occupational hierarchy corresponds with the traditional caste hierarchy. The reasons for the existence of caste hierarchy in this industry appear to be more economic than social. A majority of the workers are immigrants coming from agriculturally non-productive districts where the landless labour also happen to be the lower castes. It is natural for the lowest economic and social status groups to be the first amongst those who were pushed out from their villages.

Lack Of Experience

Very few workers have experience of work in organised sectors industry. They oscillate betw agriculture and construction

The experience of work construction industry developec the workers only limited poten lities of becoming a permar industrial workforce. A signific change has occured in their sou of vacancy information, percept of job market, and attitude towa education and training. Whe most of the workers secured t present jobs through friends , relatives, they are now m confident to find future jobs on t own. They know where jobs available and whom to contact the purpose. They feel that educat and work experience, and trainin a lesser extent, matter most in gett jobs these days. Most of them de better jobs. But the concept o better job involves slightly hig earnings compared to what they e now. Most of the workers expec reach the desired level within a years. In short, workers are be informed of the job mar conditions, are confident that t will not remain unemployed, expect to achieve the des positions. They have gained kn ledge, confidence, and hope.

It has been generally held that industrial labour in India has creat role to play in the econo development of the country. In or to become potentially a gro agent, a worker should poss qualities like productive efficien skill, adaptability, economic moti tion and a progressive attit towards work.

Construction labourers are keen to work on the project dur the entire construction season So labourers leave mainly for agric tural work towards the end of construction season. No workers hired for civil construction w unless they work continuously atleast 4 to 6 weeks.

Many migrant workers have travel hundreds of miles away fr their homes. During the period employment all non-local laboure live in temporary huts near the co struction sites. The number a proportion of local labourers in t

total construction labour force employed varied from area to area.

Women

A significant percentage of women working in the unorganised sector is engaged in the construction industry. As the industry does not offer permanent work, most of the labour involved especially women workers, are hired as casual labour. Though a certain percentage of these women construction workers are employed by contractors on a semi-permanent basis, their situation is as deplorable if not worse in respect of wages and facilities than for those hired for casual work.

The dominance of contractors and the casual hiring that characterise this industry imply that the migrant labour, drawn from the rural landless, is subject to old methods of indenturing and recruitment where bonded labour and indebtedness exist, affecting women workers most severely. In spite of these physically arduous and economically exploitative situations, it must be borne in mind that it is the several hundreds of women workers toiling long hours in difficult conditions who are responsible for the creation of the network of highways, dams, canals, bridges and building projects that proliferate in the country

In an extremely labour intensive industry it is the women, who though paid far less than the man, are relegated to the unskilled, heavy physical jobs such as lifting earth loads, scooping soil, breaking bricks, carrying head loads of brick, rubble, cement and sand and mixing cement concrete. Their stagnation in the unskilled heavy work categories is also in part due to cultural conditioning which allows them to be submissive and accept lower wages than the male unskilled workers. Even when women have assisted in the more complex tasks with skill and intelligence, their contribution has not been acknowledged.

Legislation

The following Acts have been extended to the construction industry; The Workmen's Compensation Act, 1923, Payment of Wages Act 1936, Minimum Wages Act 1948, Employees Provident Fund Act 1951, Maternity Benefit Act 1961, Contract Labour (Regulation and Abolition) Act 1970, Payment of Gratuity Act 1972, Equal Remuneration Act 1976 and Inter-State Migrant Workmen (Regulation of Employment and Condition of Services) Act 1979. But the peculiarity of the construction industry is such that the employers can escape without implementing these laws Lack of continuity of employment, changing employer-employee relationship and total lack of records pertaining to details of employment come in handy for the employer not to implement them The victims are the workers. Though the Contract Labour Act applies to big establishments and contractors, it leaves out the smaller establishments and contractors, who employ less than 20 workers.

A sizeable part of construction activities is however carried out through petty contractors. The Employees State Insurance Act does not cover a majority of the categories of construction workers.

Though the Central Government had proposed to bring forward legislation to promote the health and safety of construction workers as far back as 1982, things are moving very slowly. The proposed legislation seeks to cover building and construction workers employed in the construction of roads, dams, irrigation projects and thermal stations and provide various types of health and safety measures. The legislation, when it comes into force would save millions of construction workers from the problems they are groaning under and provide them secured and safe life. □

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Towards Total Literacy In Lakshadweep

K. Gopinath

PROTECTED from the Arabian Sea by the lovely lagoons fortified by the coral reefs and looking from far above like a string of pearls floating on the blue sea, Lakshadweep, India's smallest Union Territory spreads out palm-fringed sandy beaches and beckons you to share its quiet harmony. Tiny but picturesque, these islands are the beauty spots of the Arabian Sea.

Lying between 200 to 400 kilometres off the Kerala coast, the 36-island archipelago that comprises Lakshadweep covers a land area of 32 Sq. Kms. But the territorial waters extend 22,000 Sq. Kms. the lagoons 4,200 Sq. Kms. and the economic zone four lakh sq. Kms. Of the 36 islands only ten are inhabited spanning over 400 Kms. The inhabited islands from south to north are in the order as given below:-

	Name	Area in Sq. Km	Population in 1981
1.	Minicoy	4.4	6658
2.	Kalpeni	2 3	3540
3	Agathi	2 7	4108
4.	Kavarathi	3.6	6608
5.	Androth	4.8	6807
6.	Amini	2.6	5367
7.	Kadmat	3 1	3112
8.	Kiltan	1 6	2373
9.	Bitra	0.1	181
10.	Chetlat	1.0	1483

Malayalam and Mahl are the main languages of the inhabitants of these islands. The people in all the islands except Minicoy speak Malayalam with local variations which differ from island to island. It is quite different from the Malayalam spoken in Kerala. The people of this territory lived in isloation for many centuries. Therefore their language was not influenced by the new developments which effected changes in the old Malayalam of Kerala. A great deal of original Tamil, Kannada and Arab words are in common use in these islands. The entire inhabitants are Muslims classified as scheduled tribes. The people are drawn from two distinct racial stocks. The inhabitants of Minicoy, the southern most island due west of Thiruvanantapuram are of Maldivin stock, unlike other islanders who are of the same ethnic stock as those of the Malabar coast. The Minicoyits are a linguistic minority. Divehi, popularly known as Mahl, a mixture of Urdu and Sinhalese, is the mother-tongue of the people of this island. Its script 'Divehi Thana' is written from right to left like Urdu and Arabic. Divehi is not spoken in any other part of the country.

Backward

Since a very long time, the people of Lakshadweep did not devote any attention to the education of their children. They were too backward to realise the value of education. Under the British rule the first single-teacher school was opened at Androth in 1878. But it was closed down in 1920 owing to non-availability of teachers In 1921 it was started again. After having given training to an islander at an educational institution at Kasaragod in the mainland, a school was opened in Amini Island in 1885 It was also closed down due to lack of students in 1897.

The parents were not interested in the education of their children Introduction of incentive schemes like cash awards and better scales of pay to teachers for promotion of education also did not bring the desired effect. Attendance in all the schools did not exceed fifteen and often fell below ten during the British regime. The story of literacy revolution in Lakshadweep is commendable.

At the time of formation f this territory in 1956 there was only nine primary schools housed in dilapidated buildins. The teaching staff consisted of 28 island teachers mostly untrained or re-employed persons. But the number of educational institutions in the island at present is 55 including nine High Schools, one I.I.T. one Navodaya Vidyalaya and two Junior Colleges. The number of teachers has gone up to 650. The teacher pupil ratio is 1 to 22. All the children of school going age are studying at present, Educational institutions are housed in good buildings and equipped with furniture and other accessories.

Students desirous of going for higher studies are sent to mainland for professional, technicial and academic courses. The entire educational expenses are met by the Administration. Educated unemployment is the problem now facing the Territory

The illiterate and superstitious islanders were deadly against girls education. The first woman graduate of this territory is Dr Rahmat Begum of Agathi island. She had to face strong opposition from the people of her own island when she decided to go to the mainland to continue her studies beyond the lower primary stage with the support of the Administration. A Post-graduate in Gynaecology, she is now serving as Director of Medical and Health Services in the Territory Due to continuous efforts of officers and teachers, the islanders began to change their attitude and send their girls for higher education. Since then they have not looked back The decennial growth of female literacy between 1961 and '71 was 176.5 per cent, the highest in the country

The percentage of literacy in the territory now forming Lakshadweep according to 1951 census was 15 23 It rose to 43.4 per cent in 1971 and 54 72 per cent in 1981, as against 36 17 per cent in the country in 1981. The literacy ratio of males is higher than that of the females, 64.97 per cent in the first case and 44 21 per cent in the second case compared to the national ratio of 46 74 per cent and 24 88 per cent respectively.

Rapid Strides

The mass campaign for national literacy mission is being implemented in Lakshadweep with renewed vigour and enthusiasm This programme was inaugurated in the capital Kavaratti. The fight against illiteracy is continuing through proper running of Adult Literacy Centres besides the system of formal education. Trained lady village level workers and social organizaions are taking effective steps for informal education especially adult education among women It is more or less certain that, this union territory which was most backward in literacy till recently would achieve cent per cent literacy long before the stipulated time

Minicoy has the first rank in female as well as male literacy The percentage of literacy in this island as per cent east census was 65.14 against 36.17 in the country and 54.72 in the Territory, 71.37 per cent of the male population was literate as against 64.97 per cent in Lakshawdeep. The percentage of female literacy in this island was 59.74 compared to 43.25 in the Territory

Owing to non-availability of Mahl text books and printing press, the medium of instruction in Minicoy is Malayalam Because of this, each mother or father in this island used to be a Mahl tutor to make the children literate in their mother tongue Subsequently steps were taken to teach Mahl as a subject in primary schools To start with it was taught in the first standard from 1975 and extended to higher standards year by year

Unlike in other islands women in Minicoy enjoy equal status and rights with their male counterparts on account of their active participation and involvement in socio-economic pursuits from olden days They possess dignity, poise and confidence which one does not come across frequently among tribal or non-tribal women in the country They occupy pride of place in society and enjoy high social position In view of the active participation of women, Minicoy achieved total literacy in Malayalam in February, 1990. It is the first oceanic island in the country to achieve total literacy not in their mother tongue but in Malayalam. If Kottayam is the first town and Ernakulam the first district which achieved total literacy in the country, Minicoy is the first oceanic island or place in the Union Territories to have this high position It is also worth mentioning that all the three places have the credit to be fully literate in Malayalam The Minicoyites are good sailors and fishermen They work hard and enjoy life The educated people in this island are literate in English, Hindi, Malayalam, Mahl and Arabic The sailors of this island have working knowledge in some other foreign languages also.

Citizens councils, Development Committees, women and youth clubs, traditional institutions of village elders, Government Departments, teachers, students and elected representatives of Island councils and Lakshadweep Pradesh Council are active in the eradication of illiteracy programmes in the islands It is estimated that the Territory is nearing total literacy Complete eradication of illiteracy is expected to be achieved in all the remaining nine islands within a short period

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(Contd. from page 20)

Efforts should be made to explore the possibility of increasing employment opportunities in the agricultural sector by making it more profitable. This could be achieved by cooperative farming, multiple crops system, use of advanced technology, use of high-yielding seeds and proper mobilisation of other agricultural resources. Agricultural marketing should be given due priority to facilitate, regulate and improve marketing activities.

Various development strategies have been adopted in the State to solve the problem of unemployment and underemployment. Yet they could not help in solving the problem. Unemployment is a hydra-headed monster and there is no alternative but to fight it out. Scientists, economists, educationists, social reformers and all concerned should come forward to lend a helping hand.

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A Fresh Look At The Coffee Industry

Balbir K. Punj

INDIA'S coffee growers are largely dependent on exports for survival, for the domestic market has been stagnant at about sixty thousand tonnes for the last one decade Between 60 to 70 per cent of India's coffee production is exported and this is how the fate of Indian planters is linked with the global market.

In fact, the international market has been ruling easy since the collapse of International Coffee Organisation agreement in July last year and the suspension of export quota system has resulted in the collapse of coffee prices. In the absence of the quota system it has become difficult to survive for a country like India which cannot compete with countries such as Brazil, Mexico and Indonesia, which are the market leaders Moreover, compared to India, the Latin American countries are in a better position since the yield in these countries is improving.

India is among the countries which have increased their sales in the international market with exports crossing 1.33 lakh tonnes in 1989-90 from around ninetyeight thousand tonnes in the preceding year.

It is also possible that with the decentralisation of imports in the Soviet Union, which is one of India's largest customers, some of their coffee importers may have other preferences. The pressure on India to export will be even greater next year as production in 1990-91 is now expected to reach 2 2 lakh tonnes from the 1989-90 level of 1.3 lakh tonnes

In this emerging scenario, there appears to be little option but to look more carefully at the domestic market. The other coffee producing nations have already done so. Colombia has been able to soften the impact of the crash on its coffee producers largely because of buoyant domestic demand

The domestic demand for coffee in India is around sixty thousand tonnes per annum and it is mainly confined to the southern zone One cannot expect any substantial increase in coffee consumption in the near future. Therefore, we have to depend on exports.

Secondly, the minimum release price fixed by the government will be generally outdated since it is fixed two years after the cost of production is determined. Therefore, growers are not sure of the prices they will get for the produce. Besides, the owner of the plantations has to pay purchase tax even for the period when he was not the owner.

The rate of tax differs from state to state. For instance, in Karnataka, it is 14.5 per cent and in Kerala 6 5 per cent. Adding to the problems is the agricultural income tax which is as high as 65 per cent on imcomes above ten lakh rupees.

India produces both Arabica and Robusta varieties of coffee. During the eighties, in all the years except 1981-82, 1984-85, 1986-87 and 1988-89, the production of Arabica variety was higher than that of Robusta This may have been due to the fact that the area under Arabica has always been higher than Robusta in absolute terms. For instance, in 1980-81 the area under Arabica was 1 09 lakh hectares out of the total 2 08 lakh heactares under coffee In 1988-89, it rose to 1 23 lakh hectares Small holdings, upto 10 hectares, dominate the scene. By the end of April 1988, there were 1.18 lakh small holdings against two thousand one hundred fifty six large holdings

Karnataka, Tamil Nadu and Kerala are the three major coffee producing states Karnataka tops the list in all the three respects namely, area, production and productivity. Barring Kerala, in the other major coffee producing states, the area under Arabica is substantially larger than the area under Robusta Coffee is also grown on a modest scale in other non-traditional states such as Orissa, Arunachal Pradesh, Assam, Mizoram and Tripura.

It is essential to ensure that the domestic market breaks out of the current stagnation. The inadequate efforts in this direction in the past may have been because the world market conditions made a rapid expansion of the domestic market unnecessary. However the stagnant domestic demand has also been caused by the pooled marketing system, which does not allow for competition and the resultant efforts to expand the market □

Courtesy: AIR

BOOK REVIEW

THE INDIAN ECONOMY by I.C. Dhingra : Published by Sultan Chand & Sons, Daryaganj, New Delhi, fourth edition 1986. Pages 874 : Price Rs. 50.

The book under review discusses the resources, potential and problems of the Indian economy at the macro level and in different sectors The main focus is on planning and development issues in general and those peculiar to the Indian situation The difficulty of matching scarce resources with targets and the manner of deployment of the country's natural resources (including human resources) under successive five year plans have been analysed to bring out the wider implications of development as distinct from growth Theories of growth and different growth models Harrod Domar model, Singer's model and Mahalanobis model (the basis of second five year plan) are examined in Chapter - I Next two chapters of Section I deal with the structure of the Indian economy and poverty

The author, a teacher in economics, has taken pains to explain the resource profile (Section II), leading to a discussion on development planning (Section III) to pinpoint the Government strategy to tackle the problems of poverty, unemployment, inflation, foreign trade and balance of payments, to assess the degree of success in relation to plan objectives and also to suggest remedial measures to improve the state of the economy. Then he shifts to a detailed sectoral analysis in Sections IV to VIII to highlight the developments and problems in agricultural sector, industrial sector, labour, trade, transport, banking and finance He has sought to project a balanced picture by incorporating different view points, Government policy and possible alternative choices The discussions of growth, development and mixed economy are a very useful introduction for a better understanding of the constraints, achievements and shortcomings of the Indian economy Mixed economy has worked well Large public sector investment in irrigation projects, basic industries and infrastructure of power, transport and communications has helped to create a strong base, thereby giving 'push' to the economy

The author has made a judicious use of statistical information from official and other reliable sources, though the data are slightly out-of-date He has presented a well documented study with supporting data and tables which add to clarity Besides students of economics, even general readers interested to know about India's economic problems will find the book very useful and readable because of easy treatment given by the author to complex issues of development

(M K. Ghoshal)

MODERN SMALL INDUSTRY IN INDIA : PROBLEMS AND PROSPECTS By Ram K. Vepa. Published by Sage Publications India Pvt, Ltd. 32, M Block, Greater Kailash, I, New Delhi First published: 1988. Pages 193. Price Rs. 175.00.

In this well-written book, critical issues for the development of small industry in India has been discussed threadbare and analysed with the help of relevant data The author is eminently fit to write with conviction and authority, having worked as Development Commissioner of Small Industries in the Union Government

In a historical retrospect the author describes the important contribution of small industrial units for Indian economy Tracing their growth, he narrates the various facilities provided to them from time to time by the government and its various agencies/institutions There is an adequate description of the organisational structure encompassing the institutions involved The latest one is the District Industries Centre (DIC) emerging since 1978 as the nodal agency for development of small and village industries and to provide all support services needed for such development

On the issue of the definition of small units, as changed from time to time, the author considers if the definition should include specifically an employment criterion He argues that while there is some merit in the suggestion, it needs to be remembered that employment depends critically on the industry and the type of technology employed-which, in turn, is set by the consideration of competitiveness. Likewise, he discards 'turnover' as the reasonable criterion because computing the value added in an operation is a tedious affair

One of the most publicised and controversial features of the development programme is the policy of reservation of product groups for exclusive production in the small-scale sector The author suggests that there is need for great care in selecting products for reservation on the basis of proven capability to produce the items at a reasonable cost and of good quality "It is, of course, neither necessary nor possible that all small units must be able to do so; but the fact that a sizeable number of small units can do so is an adequate ground for considering a product for reservation."

The concluding chapter briefly dilates on the theme of prospects for the Nineties wherein it is noted that the very definition of industry will undergo a qualitative change as service and knowledge become saleable commodities. Thus, industry will mean not merely making a product but to render a Wide variety of services.

(Navin Chandra Joshi)

David Watson & Richard Holloway: Changing Focus–Involving the Rural Poor in Development Planning,Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, 1989, Rs. 125/-

This book by Watson and Holloway is unique in its own way. The treatment is lucid and simple, and is based on practical experience related to development of rural poor It is true that by and large the policy planners and decision-makers of the Third World countries are often out of touch with the real conditions of the poor. Yet they are the real "boss" and plan and operationalise the programmes concerning the poor like eradication of poverty The people who are in the know of things are usually kept out from the planning and implementation processes.

The book is the outcome of the rich experience gained by the authors from the Local Government Training Project in Indonesia (LGT 11) The aim of the project was to prepare the taining materials and procedures for understanding the extent and nature of rural poverty and measures to remove it Several possible approaches were delineated The materials incorporated fall into two broad categories : Chapters 1 to 6 provide us a set of exercise and training aids to give the trainees an opportunity to develop a feeling what it is like to be poor. They are designed to bring home to the trainees that the stigma attached to those who are poor has no place in effective eradication of Poverty. The book is also designed to provide guidance to research practices and develop skills Chapter 7 is compilation of the actual instruments used in the course dealing with field work, research and the procedure of how to use these instruments in data collection from primary source.

The basic purpose of the authors is to sensitize the people who are concerned with the welfare and development of the poor in developing countries. The pictorial presentations and sketches in the book may help us understand the issues and problems of the poor better.

Dr. M.C. Paul

Management of Marine Fishing Industry, Indian Institute of Management, U.K. Srivastava, Dharma Reddy and V.K. Gupta (Oxford and IBH Publishing Co.,pp. 235, price 65).

The three experts of the Centre for Management in Agriculture of the Indian Institute of Management at Ahmedabad, have examined in detail the main issues and inter-relationship involved in the management of marine fisheries from the catch to final processing and distribution. Professor U K Srivastava, Dr. V.K Gupta and Dharma Reddy have jointly blended their observations and findings in a thorough study of the subject, which will be very useful not only to administrators involved in the development of fisheries but also to research institutions engaged in the fishery sector

A fish has been an important subject, both in the European as well as Indian mythology, Economically, fishery is regarded as a powerful income and employment generator as it stimulates the growth of a number of subsidiary industries like boat-building yards, manufacture of fishing gear, floats, marine diesel engines and refrigerated cabinets. With the extension of territorial water limits from the traditional three-mile to twelve miles, deep-sea fishing has further expanded the scope of fishing. The Indian Ocean Zone is one of the richest in the yield of fishing products

The qualitative standard of the Indian fishing industries is high. Products like frozen shrimps, tuna fish, pala fish (off the Western Coast) and Pomfret from India are prized very high in world markets. Japan has become the largest single importer of Indian marine products, accounting for as much as 67 per cent of exports in value terms. At the same time the percentage of exports to USA has drastically declined ov time and was only 18.2 per cent 1978. In fact, except Japan, tl percentage share of all oth countries in the exports of mari products had declined. Therefo in terms of prices, Japan has con to wield significant influence our exports and unit-val realisation.

The publicity machine concening our fishing products not well-geared to benefit tl fishing cooperatives. The autho point out that the Marine Produc Export Development Authori (MPEDA) had done very little publicise the quality of o shrimps abroad. Because of t bad quality of materials and son unscrupulous suppliers enteri the business, the rejection rate Indian ports as well as some of tl foreign ports was very high Tl rejections on foreign ports did n affect Indian exporters financial But in terms of the image of Indi products it was not a very go proposition Most processors a exporters felt that MPEDA shou be more active in helping Indi processors and exporters diversifying the markets oth than Japan and the USA

The cooperative structure nee to be strengthened and streamline The authors draw the attention the authorities by stating "Not single primary cooperative h facilities for the supply of ic workshops for repairs a maintenance. On the marketi side, primary societies have ov time discovered that it is full risks and therefore they have ke out of it. Even where they have tak to disposal of fish on behalf of tl members they have found that the wholesale and retail marke cooperatives are extremely wea or non-existent and therefore the have to deal with merchan themselves"

This study has been adorne with a comprehensive bibliograph and a detailed Appendix Th authors have succeeded in dealin with a technical subject in readable manner

(N.M. Khilnan

Development Diary

Educational TV Programme

The University Grants Commission (UGC) has prepared a countrywide Class Room Programme based on Educational Television Programme for the Eighth Five Year Plan period. Rs. 50 crore has been earmarked for the programme. UGC also proposes to set up six more educational media centres in addition to the existing 14 centres in the university system. The proposed educational media centres are likely to be set up in Himachal Pradesh, Uttar Pradesh, Bihar, Orissa, Karnataka and Kerala where no such centre exist at present. The UGC is also exploring the possibility to get additional one hour time slot on Doordarshan for the Countrywide Class Room Programme.

The UGC is also considering to set up a Consortium for effective monitoring of the existing educational media centres within the university sector and carrying out research work in the area of educational mass media. So far over 2,000 programmes have been produced by the 14 existing educational media centres.

New Gram Varieties

Two new gram varieties, Pusa-256 and Pusa-267 have been evolved at the Indian Agricultural Research Institute (IARI), New Delhi. Pusa-256 has been released in all areas where big grains are preferred by the people. Due to its bold grains, the variety has been found to be excellent for parching. The high-yielding variety has a wide range of adaptation and is suitable for both normal as well as late sowing. It matures in 130 to 150 days. It is resistant to wilt and stunt diseases.

Pusa-267 has been evolved by crossing two local types, 'US 613' and 'BEG 486' with a 'Kabuli' type 'P 9623' from Russia.

The new variety has been found to be superior to other currently grown varieties and suitable for cultivation under irrigated and rainfed conditions.

Released for cultivation in the north-western plains of Punjab, Haryana, Uttar Pradesh and Rajasthan, Pusa-267 outyields the popular ICC 32 by as much as 270 Kg per hectare. Its grains are medium-bold in size and wheatish in colour and matures in 140-155 days.

Licensed U (D)-52 to post without pre-payment at NDPSO, New Delhi (Delhi Post)

Yojana : 33 years ago

TAXES AND SOCIALISM

The Wealth Tax Bill gave rise to a keen and interesting debate in the Rajya Sabha. It brought out the different ideological approaches of members to the problems of taxation. Dr. Ramaswami Mudaliar (Independent) spoke with some emphasis: "I ask myself: Oh Communism, where is thy sting? Oh Congress, where is thy victory? When I see such measures I wonder where the country is drifting. The beautiful phrase 'socialist pattern of society' seems to mean anything and everything to every Minister" and added apparently with reference to the President's remarks at Trivandrum recently, "I for one frankly, explicitly and clearly do not 'believe in co-existence within the national sphere."

INDIA'S STERLING BALANCES

India, along with most of the countries of the British Commonwealth and some countries of West Asia and Western Europe, belongs to what is known as the Sterling area. This term means an area in which all countries are joined together in doing three things. Firstly, they permit fairly free transfer of funds within the area. Secondly, to some extent they jointly control exchange of the currency of a country within the area with the currency of a country outside. And thirdly, they agree to pool their earnings of dollars. It is this third activity which has led to all the recent controversy.

GOURMET'S DELIGHT

Gourmet are not confined to any particular part of our country. Meet the gentleman from North. He can tuck in a whole roast mutton and tens of Nan tandoori with a gallon of lassi. Our friend from the South is an equally good reformer. He can devour a mountainous mound of rice laid on a plantain leaf and wash it down with generous helpings of *Idli, Sambhar* and curd. The background music is the same for the North or the South. Then gobble, gobble, gobble ...

DRONGO

The earliest caller in the grey hours of the dawn is this glossy-black bird with a forked tail. It is commonly seen perched on telegraph wires and on backs of grazing cattle from where it can dart down to pick up insects disturbed by its host. It is an aggressive little bird willing to fight cats or dogs that get too close to its nest or simply to show off its daring to its mate.

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* SMALL UNITS
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Next Issue
REPUBLIC DAY SPEC

Yojana : 33 years ago

Down With Tests

Sir,

In recent times "Examinations" have earned the distinction of being the most talked of subject. It is surprising that in spite of so much of bitter criticism levelled against this system, it is still the method of grading the merit of persons according to their intellectual capacity. Is it because they have not found a suitable substitute for it?

S.R. Subbanna
Tumkur (Mysore State)

Nehru's Electrifying Visit

On December 14, 1957, the Prime Minister, Shri Nehru, inaugurated the Calcutta Suburban electric train service. This is the first time electric traction is being used on the Eastern Railway. The first electric train in India was run between Bombay and Kurla on February 3, 1925. Madras had its first electric train on May 11, 1931.

Inaugurating the railway, Shri Nehru said, "Thousands of people have gathered outside and inside here. It looks like a marriage pandal ...It is a marriage between the old and the new era, a link between the past and the present."

Our Poetic Heritage

PALE COMES THE DAWN

By GHALIB

NEWCOMERS to the game of love,
Eager to taste the joys of life,

Listen to me and heed my words
Can you discern the note of truth?
Look at my fate, and learn!

THE Saki's beauty and splendour,
The singer's enchanting strains,
Ravish faith and rob the reason

Observe the revels at night,
Like a flower seller's basket,
Like a flower picker's palm,
The joyous and beauteous forms
Are strewn over the carpet

The graceful rhythm of the Saki's gait

A paradise for thirsty eyes!
The tender notes of the harp's strings
Heaven's bliss for the hungry soul!

Yet look again, the night is O'er,
Pale comes the dawn,
No more the joys which wine inspires,
No more the noise and boisterous glee,

No more the thrill-no ecstacy!

ALONE a burnt out candle mourns,

The young and joyous night is dead,
Alone and cold the candle lies

(Translated from Urdu by M A Husaini)

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YOJANA Wishes Readers A Happy New Year

To Our Contributors

Articles for publication in YOJANA are accepted in good faith presuming these are original write-ups of the contributors/authors and not plagiarised. Unfortunately, in some cases, unscrupulous contributors have sent plagiarised articles which caused great embarrassment to YOJANA.

Authors/Contributors are, therefore, requested to send only their own articles.

It is hereby clarified that in future if an article is found to be plagiarised, it will be the sole responsibility of the contributor to face legal action, if any.

NBCC : Tasks Ahead

The public sector National Buildings Construction Corporation completed thirty years of its existence in November 1990. Over the years, the Corporation spread its wings to jobs related to town planning, engineering services, sophisticated high-rise structures, consultancy and turn-key jobs within the country and abroad. Its turnover rose to 125 crore rupees in 1989-90. In the next four years, it envisages a growth rate of 12 per cent. How far it is responding to the challenge of mounting housing shortage in urban and rural areas and expanding its net-work abroad? Considering the massive job of construction activities in the Plans, is its present role adequate ? YOJANA Editor, M.D. Pakrasi, talks to the Corporation Chairman Mr. R.C. Kehar. Excerpts :

What are your views on the mounting housing problem ?

Development of housing must assume high priority in a developing country like ours, where housing amenities are far below the minimum standards that have been internationally accepted The housing backlog had grown to 2.5 crore units in 1985. The increase in population between 1985 and 1990 could generate roughly an additional requirement of housing units to the extent of 1.62 crore of which 1.24 crore will be in rural areas and 36 lakh in urban areas. This implies that even if the aim is only to prevent an increase in the magnitude of backlog in housing shortage, it would be necessary to build an additional 1.6 crore units in the years. to come.

The resource requirements to meet the above targets appear daunting. Building materials constitute a high proportion of the capital outlay on housing projects. I feel that an innovative approach in design, use of local materials and particularly the use of agro-forestry and industrial mining wastes in manufacture of building components could go a long way in minimising the capital required. Expert bodies could be set up to define new specifications for incorporation in the industry.

I personally feel that public sector, construction companies have a lot to contribute in effectively tackling the housing problem and should be given a greater role than merely that of construction. The NBCC has attempted to synthesise prefabrication and conventional technology to evolve a cost effective design for mass housing. The entire process from concept to completion has to preferably done by one agency in order that optimal solutions in respect of design, use of local materials, man-machine for construction etc. generated. This calls fo in the present system o works to that of turnkey which could be given sector construction com negotiated basis.

As a leading Public Sector tion engaged in construct ties, do you visualise a mass housing ? If so, ho going about it ?

We are very much in the construction of mas units. A large number c are there in this sector. been involved in co housing colonies fo cooperative societies an clients, such as BHE HUDCO, IPCL, CIDCO now, we are construc residential flats for Bhara Coal Limited at Dhanb completed in one yea Conforming to our introducing new trend struction technology, planning to construct an flats for our client Dhanbad in the next fi These flats would be co using pre-fab system co load bearing hollow blocks for walls and pre concrete hollow core slal members. Both these would be manufacture plants to be set up a location at Dhanbad high quality of materia construction at site, bett tion, fine finish, eliminati use of timber for scaffol and finally environment as bricks are not use construction.

Do you propose enter estate business ? If so, outline the areas of activ

To start with the Co has taken up constru commercial buildings and efforts are being made to this business for re buildings also. As on Corporation has con

projects worth over about Rs. 75 crore, notable among them are, NBCC Tower at Bhikaiji Cama Place which is expected to be completed in June 1991, a commercial building at Ghaziabad, an office complex at Lodhi Road, and another commercial building at Ahmedabad. Our experience is that we are able to do such projects at a much faster pace compared to present builders. Our quality of work also has been highly rated. With the entry of public sector construction companies into Real Estate business, the general public is assured of better quality at reasonable cost.

You seem to have gone in for hospital construction both within and outside in a big way. What are the special reasons for this ?

To fulfil the needs of integrated construction services, which is our corporate objective, NBCC is continuously exploring and adopting different fields to achieve specialisation. Hospital construction is one such field where the Corporation has made a mark. We are proud to be able to contribute towards India's strong commitment for providing medical care to all NBCC has played a significant role by way of construction of hospitals in both urban and rural areas of India as also a number of hospitals abroad. The expertise gained by us on hospital projects overseas has been usefully utilised in the construction of hospitals in India. By virtue of its proven performance in the field of hospital construction, NBCC has got repeat orders from various authorities for the construction of hospitals The major hospital projects completed by us at home are 1 Mahatma Gandhi Medical College Hospital Sevagram, Wardha; 2. National Institute of Hearing Handicapped, Bombay; Medical Collage Hospital at Guwahati; 4 National Institute for Mentally Handicapped, Secunderabad, 5. 603 - bed Eastern Command Military Hospital at Calcutta; 6. Vallabh Bhai Patel Hospital, Meerut; 7. Silver Jublee Tuberculosis Hospital, Delhi; 8. Hospital Complex Phase-III at Varansi; 9. Hospital Complex at Imphal; 10 Hospital at Pondicherry And overseas · 1 120 bed hospital at Ghat, Libya, 2 Bir Hospital at Kathmandu, Nepal The on-going projects are 1 Indira Gandhi Medical Complex at Male, Maldive, 2 Institute for Physically Handicapped, New Delhi, 3 Indira Gandhi Insitute of Medical Sciences, Patna; 200 bed Hospital at Hyderabad for ESIC (Emplyees State Insurance Corporation); 100- bed Hospital at Auranagabad for ESIC, 6 50 bed hospital at Trupati for ESIC; 7 300 - bed hospital at Calcutta for ESIC.

Have you any plans for expanding to areas other than construction?

Apart from construction activities, the Corporation has enlarged its participation in the field of Consultancy Services Project Management and maintenance of building services. The Consultancy Division of NBCC is rendering architectural, structural and engineering services consultancy to the various government departments and undertakings on turnkey basis which enables the clients to reduce their own supervisory and engineering personnel The Corporation additionally offers Consultancy Services in the areas of project management and software development for construction industry such as structural analysis and design, project management, design of construction related MBS, etc NBCC strongly believes that high priority should be given to the maintenance of buildings. It is felt that there is dissatisfaction among the users of housing colonies regarding the provision of maintenance A strong requirement exists for reliable and timely services NBCC has vast experience in this area and a well trained work force It thus proposes to enter the field of maintenance of buildings by offering its quality service at reasonable rates.

What is your experience in export contracts abroad ? For example in West Asian countries.

NBCC entered the project export market in the year 1976-77 in Libya followed by. Iraq in the year 1977, Yemen and Nepal in 1984 and the Maldives in 1988. The Corporation has been able to secure a number of works in these countries The works secured by the Corporation in these countries are varied in nature, such as turn-key construction of buildings, hotels railway station buildings, hospitals, runways, flyovers, road works, water treatment plant, university buildings, brine storage tanks, housing projects etc The total value of works already done by the Corporation in the overseas countries is about Rs 800 crores and the balance work in hand is of the tune of about Rs. 25 crores.

NBCC has contributed significantly in project export and also in providing technical aid to countries. For execution of overseas projects, NBCC procured a large number of new generation modern plant and machinery, featuring the most advanced technology available in the world With the use of mechanised technique of construction NBCC has acquired considerable expertise in the construction projects. The experience gained by NBCC's engineers has been gainfully utilised for the execution of home projects By deploying these engineers the Corporation has been able to achieve time-cost savings on these projects besides improving quality

The business in West Asian countries suffered a set back in the mid-eighties due to war conditions between Iraq-Iran and due to fall in oil prices. They faced severe liquidity problems, resulting in a general recession in the construction activities in these countries This also resulted in delay/deferment of payment by clients and in many cases premature termination of contracts.

After cessation of hostilities between Iran and Iraq, it was felt that there would be a boom in construction to meet the requirement of reconstruction of war damaged industrial and public utility structures in addition to

fresh development projects. Although these countries, particularly Iraq have a number of projects available for execution they either want to get the same done by their local contractors or by someone who can either take the payment in local currency or who is willing to finance the project itself on deferred payment basis. To borrow in hard currency in a foreign country is neither advisable nor feasible for an Indian project exporter. A number of resourceful contractors have come into existence in each of the countries in West Asia and they have acquired sufficient expertise to satisfactorily execute works, such as housing, roads, bridges and public utility projects. It is therefore, only such projects where high technology is required that foreign contractors are needed. Also, a major part of the construction boom in all the West Asian and North African countries was on housing, roads, bridges, water and sewerage projects. In the two decades of seventies and eighties all such construction has come to saturation point. There are, therefore, not very many projects of this nature for new construction.

With the above limitation in the West Asian countries only such international projects exports can compete in the bids which have large financial backing and full support from their respective governments. Although, the construction opportunities have come down substantially in West Asia and North-East Africa, more and more projects are coming up in other parts of world, such as Afghanisthan, Malaysia etc.

Have you any plans for taking up housing or related works in rural areas ?

About 77% of India's lives in rural areas attaches high priority up development orient in rural parts of India f basic needs of shelter a ture. NBCC has vast ex development and c works such as food g the FCI in remote area number of school Navodaya Samiti in areas. NBCC is in cor with its sister organisa for executing developn financed by them in r

A Central Training I been set up with in-h for skills upgradation It is hoped that the Inst grow to be an apex bod of Construction work

Prospects Of Venture Capital In India

R.M. Srivastava

In view of the rapidly changing economic scene and technology boom, venture capital institutions hold a bright prospect, says the author. The service sector, particularly tourism has vast potential. It is desirable to broad-base the operations of the existing venture capital funds. So is the need to offer more tax concessions to give it a boost.

VENTURE capital an American experiment, is now being widely recognised in different parts of the world as a vital means to foster industrial development in a country because of the crucial role it plays in technological innovation and its commercial exploitation. By actively associating themselves with budding firms specialising in new ideas or new technologies and supplying capital, knowledge and efforts to the entrepreneur, venture capitalists contribute significantly in enlarging the range of commercial exploitation, outstretching the frontiers of knowledge to unbounded dimensions, opening up new vistas and offering hitherto unheard of opportunities to a new generation of entrepreneurs. Even existing firms, which find it difficult to adapt and respond to new ideas and rapid changes in markets/ environments, are provided support by them to overcome these inhibitions and develop new products and processes in a very conducive atmosphere. Venture capitalists serve as a conduit between investors and investee firms. However, their participation is far more extensive and individual than that of a traditional commercial banker. While the banker serves as the financial intermediary, the venture capitalist plays the role of a resource manager for business development.

The most important feature of American Venture Capitalists is that they are totally involved with firms based on high technological innovation right from the stage of concept of business ideas to the final stage of their establishment. They render, in addition to risk capital, managerial, commercial, technical, financial and entrepreneurial services so as to enable the firms to launch new business and achieve optimum performance. They are almost a full-fledged partner in the business along with the entrepreneur, sharing the risk and added value created in the process. American Venture Capitalists do not just invest, they build firms.

Venture Capital as such has a very bright future in India in view of the tremendous demand of such capital from up and coming enterprises, small and large firms, and sick as well as healthy concerns, on the one hand and scarce supply of such capital, on the other.

Rapidly changing economic environment coupled with socio-cultural changes and accelerated by the high technology explosion, point to the necessity of development of Venture Capital funds in the country so as to exploit fully the existing scientific knowledge and develop new processes and products. As India is on the threshold of high technology revolution, absence of Venture Capital facilities is likely to hamper the blooming of new entrepreneurs to exploit the full potential. Even large existing companies can be facilitated to adapt and respond promptly to new ideas and develop products of national and international demand. Venture capitalists with their ideas, expertise and competence can play a significant role in resuscitating large number of such sick units.

Prospective Areas

Small scale organisations serving as ancillaries to major industrial groups offer vast scope for Venture Capital in the country. Major industrial units in their endeavour to upgrade their technology expect their ancillary suppliers to keep up the upgraded quality standards. Small suppliers may find it too difficult to switch over to new technology so frequently and in that event they may lose their major client and may ultimately collapse. Venture capitalists can step in, in many of these areas and salvage the firms from the crises by providing not only equity but also. contacts and professional

expertise. Such support by Venture Capitalists to a production-oriented entrepreneur with few connections outside his industry and location would be immensely useful.

Another gravid area for Venture Capital is the Service Sector which is a growing sector in our country and whose potentiality has yet to be tapped fully Support of venture, capitalists, particularly to the development of tourism in some pockets and other services, which our metropolitan cities and new growth centres require, will go a long way in exploiting the untapped potentiality of the service sector.

To cope with the above demands, financial institutions and banks have been making efforts to launch Venture Capital funds/ schemes. Thus, IFCI set up 'Risk Capital Foundation' in 1975 to supply special capital to new entrepreneurs and IDBI introduced two seed capital schemes to render assistance to the entrepreneur having skills but lack finance. In 1986, ICICI launched a Venture Capital Scheme to encourage new technocrats in new fields of high technology with inherent risk. To undertake this task on a continuous and systematic basis, the Corporation set up with UTI 'The Techology Development and Information Company of India Ltd' (TDICI) in 1988. TDICI has started providing venture capital, R & D funds and technical and managerial services, including technology and information. For the first time ICICI has established in 1988 with UTI 'Venture Capital Fund' with Rs. 20 crores, subscribed equally by ICICI and UTI. The fund is being used for providing assistance mainly in the form of equity,. conditional loans and convertible debentures to set up technological ventures which have potential for fast growth. ICICI and UTI have jointly launched their second Venture Fund for Rs: 100 crore in January 1990. It is interesting to note that 'The Commonwealth Development Corporational of the U.K. will also be participating in this Fund. Among banks State Bank of India and Central Bank have shown interest in this area. Grindlays Bank has launched 'The India Investment Fund' which involved funds raised abroad from non-resident Indians to be used for projects which need venture financing. In July, 1990, the Gujarat Industrial Investment Corporation Ltd. has launched a 'Venture Capital Finance Scheme' through a newly registered subsidiary, with the help of the Capital Trust Fund worth Rs. 24 crores to cater to the projects which will enhance the growth of the national economy. The new subsidiary Gujarat Venture Finance Ltd. would financially support the entrepreneur having both indigenuous and imported technologies not tried before in the country.

In the private sector, first venture capital company 'Credit Capital Venture Fund' was set up in April 1989 with Rs. 10 crores, to be subscribed by international financial agencies to the extent of Rs. 6.5 crores and the remaining through public subscription.

The above Venture Capital funds/schemes are essentially in the nature of equity assistance funds/schemes. They are not the full-fledged venture capitalists who could offer a broad spectrum of multi-faceted specialist services like the venture capitalists in the U.S. or U.K. Further, having regard to the mammoth task to be performed by Venture Capital finance in India, size of the existing funds/ schemes appears to be too small. It will, therefore, be desirable to broad base the operations of existing venture capital funds and set up several new venture capital funds both in public and private sectors so as to take care of the current as well as forthcoming capital needs of entrepreneurs engaged in technological innovation and its exploitation. The venture capitalists should be actively associated with the firm right from its inception to operations and mar They should provide, ir to equity capital, a comp package of technical, coı financial and manageria to the entrepreneurs an position to offer innovativ to the varied problems them in business p technology transfer and ir To this end, the Ventu funds should have at thei adequate resources anc command multi-di technical expertise.

Suggestions

Further, in order t success of Venture C India, certain fiscal and in arrangements will hav made. Thus, tax policie be carefully scrutinised provide for special ince risks the investors und investing in the equity new firms. The present t does not differentiate earned on risky investm that on risk-free investm tax system should offer c for compensating the nc of dividends from new fir their gestation period. there has to be some ins arrangement which o venture capitalists the op to offload their inv Establishment of an securities market in th will be very useful in th Provision of adequate i facilities against the risk ventures will give fillip and broad-based Ventu movement in India. Fi entrepreneurial traditio more broad-based and k based. This calls for i education and training in e eurship to aspiring and entrepreneurs.

The author is the Chief of I Management Studie

Growth Of Industry And Industrial Infrastructure : An Inter-State Analysis

R.V. Dadibhavi

SINCE the inception of planning, several studies have been made on inter-regional and inter-temporal variations in the rate of growth in India's manufacturing sector. However, the detailed studies on influence of industrial infrastructure on industrial growth are little known. In fact, the influence of infrastructural development on industrial growth can be better studied in a regional or state-wise analysis of industrial growth than in a industry-wise analysis.

The objectives of the paper are :

(i) to study the trends in inter-state industrial disparity from 1970-71 to 1986-87;

(ii) to study the trends in industrial output in states during the period 1970-71 to 1986-87;

(iii) to study the trends in growth of industrial infrastructure in the States during the period 1970-71 to 1984-85;

(iv) to study the association between growth of industrial infrastructure and industrial output.

The Net State Domestic Product originating from organised manufacturing sector is our measure of industrial output in each state. The seventeen major state economies in India are selected for the study.

In this analysis the author seeks to find out the effectiveness of the measures to reduce regional disparities. The causes leading to this are not always clear-cut and therefore the suggestion for probing the phenomenon.

Growth rates in industrial output (real value added) are estimated for three periods, 1970-71 to 1980-81, 1980-81 to 1986-87 and 1970-71 to 1986-87. The basic data for this study are drawn from "Estimates of State Domestic Product" brought out by the C.S. O. and from Basic Road Statistics of India, Central Electricity Anthority and Banking statistics.

Industrial Disparity

Table 1 provides the per capita incomes in the registered manufacturing of the 17 major State economies in India for the year 1970-71, 1980-81 and 1986-87 at constant (1970-71) prices.

It the States are ranked by their per capita industrial incomes, there appears to be very little change over the 16 year period from 1970-71 to 1986-87. With the exception of Andhra Pradesh, Assam, West Bengal, the relative ranking of the States by percapita industrial income has not changed much. Table 1 clearly shews that of the 5 top ranking States i.e. Maharashtra, Gujarat, West Bengal, Tamil Nadu and Haryana, it was only West Bengal which has lost its rank in 1986-87. The four poorest industrial states in 1970-71 were the states of Jammu and Kashmir, Himachal Pradesh, Rajasthan and Uttar-Pradesh. In 1985-86, Orissa slipped into this category while Uttar Pradesh improved its position. The measure of inequality Co-efficient of Variation, (CV) calculated for the three periods of study (last row of table 1) indicate that the industrial disparity has increased from 1970-71 (83.93%) to 1980-81 (85-46%) and thereafter there appears to be no change in the disparity level. This is an evidence that the economy is not working in accordance with the policy as far as the regional disparity is concerned.

Estimated growth rates in industrial output (real net value added) for the 17 States covered in the study for the seventies, eighties and for the entire period are presented in Table 2. The last column indicates the changes in the growth rate in eighties over that of seventies.

The Table reveals that there are wide variations in the growth rates

of SDP from registered manufacturing among states. The fastest industrial growth during the seventies was experienced by Jammu and Kashmir, Punjab, Karnataka, Orissa, Haryana, Tamil Nadu and Andhra Pradesh with the growth rates of industrial value added ranging between 7 and 9.16 per cent p.a. Close behind were states of Maharashtra and Gujarat which experienced industrial growth above 6 per cent p.a. West Bengal, Assam and Himachal Pradesh yielded a very low rate of manufacturing output growth around 2 per cent p.a.

The regional profile of industrial growth in the eighties is very different from that in seventies. Uttar Pradesh emerges as the growth giant recording industrial growth of 14.67 per cent, Andhra Pradesh, Himachal Pradesh, Gujarat, Karnataka and Madhya Pradesh are the other states which have recorded high industrial growth in the eighties. The two states which turned from bad to worst in respect of industrial output are West Bengal and Kerala. Orissa also experienced a very low rate (1.79 per cent p.a) of industrial growth in the eighties. The two States which turned from bad to worst with respect of industrial output are west bengal and Kerala. Orissa also experienced a very low rate (1.79 per cent p.a) of industrial output growth in eighties.

Comparing the growth rates for the seventies and eighties, it is observed that as many as 9 States, with 64 per cent share in the total manufacturing output in the economy experienced a deceleration in the rate of industrial growth in Jammu and Kashmir, Kerala, Orissa, Punjab, Tamil Nadu and West Bengal, while Haryana, Karnataka and Maharashtra experienced only a marginal diminution in the rate of industrial growth. However, 7 States viz., Himachal Pradesh, Uttar Pradesh, Andhra Pradesh, Assam, Gujarat, Madhya Pradesh and Rajasthan experienced a sharp increase in industrial output in eighties compared to seventies.

The fastest growth in industrial output was experienced by Andhra Pradesh, Haryana, Jammu and Kashmir, Karnataka, Punjab and Uttar Pradesh during the entire period of study viz., 1970-71 to 1986-87. All the states experienced growth rate above 7 per cent Whereas, Assam, Orissa and West-Bengal, yielded less than 4 per cent rate of industrial output during the same period.

On the basis of industrial growth experience of the different states in seventies and eighties, the States can be grouped into three categories. The first group consists of States in which industrial output grew by and large at a uniform rate during both the periods. This group includes Haryana, Karnataka and Maharashtra accounting for 39 per cent of industrial output of the economy. The second group consists of States which experienced a significant deceleration in growth rate of industrial output in eighties This group includes Jammu and Kashmir, Kerala, Orissa, Punjab, Tamil Nadu and West Bengal with the relative share of 23 per cent of nation's manufacturing output. The third group consists of remaining States, Andhra Pradesh, Assam, Bihar, Gujarat, Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Madhya Pradesh, Rajasthan and Uttar Pradesh which experienced an increase in the rate of industrial growth. The relative weight of these states together is 26 per cent

To understand further the phenomenon of regional industrial disparity, we have presented the level of per capita registered manufacturing output over the period 1970-71 to 1986-87 in Table 3.

Table 1

State Per Capita Income in Registered Manufacturing: 1970-71, 1980-81 and 1986-87.

(At 1970-71 prices)

States	*1970-71*		*1980-81*		*1986-87*	
	Percapita income (Rs)	*Rank*	*Percapita income (Rs)*	*Rank*	*Percapita income (Rs)*	*Rank*
Andhra Pradesh	23.7	12	34 4	11	56.1	8
Assam	28.7	9	25.4	13	32.3	13
Bihar	28.6	10	35.4	10	42.7	12
Gujarat	98.5	2	133.2	2	191.9	2
Haryana	57 8	5	103 0	3	136.2	3
Himachal Pradesh	15.8	16	11 1	17	20 7	16
Jammu & Kashmir	4 4	17	12.5	16	18.0	17
Karnataka	50.4	6	79.2	6	115.0	5
Kerala	32.7	8	50.6	8	50.2	9
Madhya-Praesh	22 2	13	30 6	12	47.5	10
Maharashtra	157.5	1	221 2	1	277.0	1
Orissa	25.8	11	36 5	9	30.2	14
Punjab	41.6	7	75.2	7	95.4	6
Rajasthan	19.5	15	22 4	15	30.1	15
Tamil Nadu	63.9	4	96.1	4	118.3	4
Uttar Pradesh	21.0	14	23.0	14	43.2	11
West Bengal	91 6	3	89.0	5	81.5	7
All India*	46.1	—	63.5	—	81.5	—
C.V.%	83.9	—	85.5	—	85.1	—

* Average for 17 states.

Source: (i) CSO (1985): Estimates of State Domestic Product, 1960-61 to 1983-84.
(ii) CSO (1986): Estimates of State Domestic Product, 1970-71 to 1984-85
(iii) CSO (1989): Estimates of State Domestic Product, 1970-71 to 1987-88

It is clear from the Table that in only eight out of 17 States, level and growth are inversaly associated. Therefore six States viz., Assam, Bihar Himachal Pradesh, Kerala, Orissa and Rajasthan are not only suffering from low level of industrial output but also from low level of industrial growth. A deliberate policy alone may help to accelerate industrial output of these six States. This policy change may go a long way in reducing regional disparity in the country.

Growth of Inferastructure and Growth of Industrial Output

In several studies, adequate development of infrastructural facilities has been considered as an important cause of industrial growth. This provides the justification for selecting a few crucial infrastructural inputs i.e. power supply, transport facility and industrial finance as explanatory variables. The consumption of electricity in industry measures the availability of power to industry. The surface road length is the proxy for transport facility available in each state. The amount of credit advanced to industry by the commercial banks is the measure of credit supply to industry. The growth rates of the above infrastructure components are derived by fitting semi-long functions with time. The growth rates of industrial infrastructure variables are worked out only upto 1984-85 owing to the

Table 2

Annual Growth Rates of Real Net Value Added in Registered Manufacturing in Different States : 1970-71

States	*Share of Reg. Mfg output (%)*		*Growth Rate of NVA in Reg Mfg. (1970-71 prices) per cent*		*Change in growth rate in eighties over seventies*	
	1970-71	1986-87	1970-71 to 1980-81	1980-81 to 1987 88	1970-71 to 1987-88	
Andhra Pradesh	3 61	4 93	7 17	10 77	8 25	3 60
Assam	1.46	1 08	2.55	5 78	3 75	3.23
Bihar	5 63	4 98	4 15	5 17	5 02	1 02
Gujarat	9 21	10 80	6 46	8 48	6 83	2.02
Haryana	2 03	3 03	8 25	7 75*	7 85	-0 50*
Himachal Pradesh	0 19	0 14	1 09	10 56*	4 59	9 47
Jammu & Kashmir	0 07	0 18	14 09	7 38*	14 18	-6 71
Karnataka	5 17	7.10	9 20	8 54	7 92	-0.48
Kerala	2 44	2 08	4 78	1 44*	4 22	-3 34
Madhya Pradesh	3 24	4 14	5 69	8 27	6 80	2 58
Maharashtra	27 80	28 79	6 89	6 38	6 07	-0 51
Orissa	1 98	1 30	8 85	1 79	3 92	-7 06
Punjab	1 97	2 63	9 16	5 86	7 70	-3 30
Rajasthan	1 76	1 78	4 66	6 78	5 76	2 12
Tamil Nadu	9 20	9 25	7 86	5 60	5 97	-2 26
Uttar Pradesh	6 50	7 96	5 07	14 67*	7 45	9 60
West Bengal	14 21	7 34	2 00	0 88	3 71	-1 12
All India (average for 17 states)	100	100	6 31	6 83	6 45	0 5

The totals are less than 100 as other states are not included

* 1980-81 to 1986-87

Source : Same as Table 1

Table 3

Classification of States According to the level of Per Capita manufacturing output and growth of Manufacturing output.

Level of P.C. Reg. Mfg. output 1970-71.	*Growth of Reg. Mfg output · 1970-71 to 1986-87* High	Low
High	*Gujarat, Haryana Maharashtra, Tamil Nadu West Bengal*	*Maharashtra, Tamil Nadu*
Low	Andhra Pradesh, Karnataka, Madhya-Pradesh, Punjab Uttar Pradesh	Assam, Bihar, Himachal Pradesh, Kerala, Orissa, Rajasthan

data limitations. Further rank correlation analysis is carried out to examine the kind of association prevailing between the growth rates of infrastructural variables and industrial output.

Estimates contained in Table 4 divulge interesting variations in industrial infrastructural growth patterns across regions of the country during the period of study. For India as a whole, the industrial output increased at a rate of 6.45 per cent per annum, that of the power supply for industry at 6.03 per cent per annum and surfaced roads at 5.18 per cent per annum. Meanwhile, commercial banks credit to industry increased by 14.52 per cent per annum. The pattern of infrastructure growth, however, shows interesting variations across states. In Uttar Pradesh for example, corresponding to a growth rate of 7.45 per cent per annum of industrial output the power supply of industry grew at the rate of 3.56 per cent per annum. However, the industrial credit and surfaced roads increased at the rate of 14.16 and 5.68 per cent per annum, respectively. The high growth of industrial output in Jammu and Kashmir and in Madhya Pradesh is associated with high growth of power supply credit. In States such as Andhra Pradesh, Haryana and Punjab, on the other hand, power supply, road development as well as industrial credit were rising above the all India average. In Andhra Pradesh, Haryana Punjab, power supply increased at the rate of 11.99, 7.79 and 9.80 per cent per annum, respectively. These three areas also exhibited very high rates of growth in industrial credit.

The slow growth of industrial output in Orissa (3.92 per cent p.a) Tamil Nadu (5.97 per cent per annum) and West Bengal (3.71 per cent per annum) is associated with slow growth in all the three infrastructure facilities.

However, it is difficult to say that the growth of industrial output in certain regions is primarily explained by growth of certain crucial infrastructure facilities. In Karnataka, for example, industrial output grew at 7.92 per cent per annum despite slow growth of power supply (4.86 per cent per annum) surface road (3.17 per cent per annum) and industrial credit

Table 4

Growth Rates (as per semi-log Function) of selected Industrial Infrastructure Variables and Industrial Output : All India And States 1970-71 To 1985-86.

(Growth Rates in per cent per annum)

States	*Regd. Mfg output 1970-71 to 1986-87 (at 70-71 prices)*	*Industrial power consumption 1970-71 to 1985-86*	*Surfaced road length 1970-71 to 1982-83*	*Commercial banks credit to industry 1971-72 to 1984-85*
Andhra Pradesh	8.25	11.99	15.99	15 38
Assam	3.57	9.27	5.05	24 45
Bihar	5.02	4.72	5.83	8.60
Gujarat	6.83	7.29	6.80	13 28
Haryana	7.85	7.79	5.47	17.11
Himachal Pradesh	4.59	20 5	5.51	32.34
Jammu & Kashmir	14.18	8.22	3.33	23.45
Karnataka	7 92	4 86	3.17	13.81
Kerala	4.22	3 49	3.07	18.08
Madhya Pradesh	6.80	12.46	4.48	17.82
Maharashtra	6.07	5 04	6.97	13.47
Orissa	3 92	4.53	4.01	15.13
Punjab	7.70	9.80	7.83	18.27
Rajasthan	5.76	8.28	5.35	19.74
Tamil Nadu	5.97	4.84	4.76	13.54
Uttar Pradesh	7.45	3.56	5.68	14.16
West Bengal	3.71	1.48	2.09	11.14
All India	6.45	6.03	5.18	14.52

* Average of 17 states.

Source : Electricity Supply Industry Salient data. Government of India, various issues.

(ii) Basic Road Statistics of India-1982-83, Transport Research Division, Dept. of surface Transport, Ministry of Transport. Government of India, New Delhi.

(iii) Banking Statistics, BSR (Summary Results), Reserve Bank of India, Bombay, various issues.

(Contd. on page 26)

Regional Co-operation in Small Units

Anjana Chatterjee

The author suggests that it will be better to bring all the agencies dealing with small units together under each item of manufacture in individual countries. This will help in linking item and country-specific SSI to a forum of regional economic co-operation. It will strengthen the organisational base of SSI in member nations and provide proper linkages for regional cooperation.

AT the current stage of economic development of the countries of the South Asian region, Small Scale Industries (SSIs) play a significant role in promoting wider employment and entrepreneurship. The social value of small scale sector is equally important in attaining the major objectives of removal of poverty, regional imbalance and attainment of self-reliance. Formation of a NETWORK for cooperation and collective development in the member nations is suggested wherein economic advantages in one specific country in the matter of raw-material availability, skills, technology, finance, plant and equipment could be shared with the other and fruitfully utilised in the region itself to widen employment base, regional market and to promote collective exports outside the region.

Regional cooperation in industrial field is an established form of economic relations which enables the participating nations to understand the profound modifications brought about by the changing environment and to face the challenges of the years to come. By and large India, Bangladesh, Nepal, Pakistan, and Sri Lanka are still at different levels of development. Thus, the need for small scale industries in these countries is considered to be very important.

Review Of SSIs

Certain SSI items like readymade garments, leather goods, carpets, gems and jewellery and plastic goods have been developed in SAARC countries having traditional skills, availability of raw materials and infrastructural facilities. Regional economic cooperation in SSI sector for these items will foster further consolidation and growth of the industry. That the small-scale sector contributes an impressive proportion of the export trade and also economic development of a country in a variety of products in South Asia can be seen from the Table I.

The importance of small scale sector in developing economies lies in the advantages of low capital intensity and high employment generation potential. It also promotes decentralisation of industrial growth and widens entrepreneurial base. The small and cottage industries in Bangladesh contribute about 50 per cent of the value added in manufacturing. The employment of this sector, for 1985, was placed at about 37,9,840 and its contribution to GDP had been about 3.8 per cent. The trend in growth of small sector could be seen from Table 2. Available statistical information shows that capital investment per person employed in the small and cottage industries varies from one-tenth to one-third, compared with the investment per person employed in the large and medium scale industries.

The small scale sector plays a key role in India's planned economic development because of its low investment, high potential for employment generation, decentralisation of industrial base and dispersal of industries to rural and semi-urban areas. In 1986-87, small industries accounted for production valued at Rs. 72,250 crores which is expected to rise by Rs. 80,220 crores in 1989-90. The sector employed 1 crore persons in the year 1986-87 and the member is further expected to increase to 1.2 crore persons in 1989-90. The value of exports of this sector was Rs. 3,048 crores in 1986-87 and is likely to rise to Rs. 4,140 crores in the financial year of 1989-90. The trends in small industry development could be seen from Table 3. It is pertinent to note that at present there are 846 items and about 5,000 varieties of products are being manufactured by this sector. Also with consumer goods, a combination of sophisticated products are being manufactured by this sector.

Table 1

Products of Small-scale Sector in South Asia

Countres	*Small-scale Products*
Bangladesh	Confectionaries and bakery products, dyeing and bleaching, handloom weaving, footwear readymade garments, matches, jute pressing, printing *machines, structural metal products.*
India	Bicycle parts, autoparts, hand tools, medical and surgical equipment, sports goods, ready made garments, leather goods, cotton hosiery, plastic products.
Nepal	Soap, matches, rubber slipper, jute ropes, coarse woolen blankets, *stationery,* goods.
Pakistan	Grey cloth, carpets, leather garments, leather shoes and leather goods, weaving apparel, handicrafts, rugs and druggests, light engineering goods.
Sri Lanka	Textiles, wearing apparel, leather products, wood and wood products, rubber and plastic products, printing and paper products, fabricated metal products.

Source : Various official documents of the respective countries,

It is estimated that the production of small scale and cottage industries in Nepal will increase to Rs. 202 crore and that of exports to Rs. 135 crore by 1990. Consequently, it is also estimated that this sector will provide employment to 80,458 persons, i.e., 84.46 per cent to the total employment being provided by the industrial sector.

Small-scale industries is an important sector in the economy of Pakistan. It contributes 30 per cent to value added in manufacturing sector, 4.89 per cent to GDP and 18 per cent to total exports, employs more than 81 per cent of the industrial labour force. It tends to exhibit relatively higher levels of efficiency and better income distribution. The trend of small scale industry's contribution to production and GDP could be seen from the Table 4.

The small industries formed the core of the industrial structure of Sri Lanka. Roughly it accounts for 70 per cent of the employment and 30 per cent of the value added in industry (Five Year Plan, 1972-76). Exports of small scale sector, in Sri Lanka have started progressing since the establishment of Investment Promotion Zone in 1979 and second unit in 1986.

Challenges Ahead

While considerable progress has been made in each member nations of SAARC in the SSI sector, problems of this sector remain common. Some of them are geographical spread of the units, entrepreneur-managed single authority set up, lack of management skills, inadequate information base; poor financial staying power etc. Over the years a number of government measures for this sector have led to du tion of efforts and not been a integrate this sector into a organised industry sector. before attempting re economic cooperation for sector, it will be required to all the agencies dealing wi together under each ite manufacture in indi countries. Once this is done,

Table 2

Trend in Growth of Small Scale-sector of Bangladesh

Year	*No of Small Industrial Units*	*Investment Taka in crore*	*Employm in Nos.*
1962	16,331	133.51	21,9,16
1978	24,005	196.24	32,2,12
1985	28,304	231.39	37,9840

Source : Bangladesh Small and Cottage Industries Corporation, 1986.

Table 3

Trends in Small Industry Development, India

(Rs. in c

Year	*Production at current prices*	*Employment (lakh Nos)*	*Investment*	*Exp current*
1979-80	21635	67.0	5540	
1984-85	50520	90.0	8380	
1986-87	72250	101.0	N.A.	
1989-90	80220	119.0	—	

Source : Nagaiya. 1989

Table 4

Pakistan's Industrial Contribution

Year	Production in Rs. million		Contribution to GDP (%)	
	Total	Small	Total	Small scale
1982-83	54,403	13,398	16 74	4 40
1984-85	73,572	18,994	16 91	4 37
1987-88	106.060	28,565	17 75	4 89

Source: The Federation of Pakistan Chambers of Commerce and Industry, 1989.

not be difficult to link item and country specific SSI to a forum of regional economic cooperation. This exercise will not only lead to strengthening the organisational base of SSI in member nations but also provide proper linkages for regional economic cooperation.

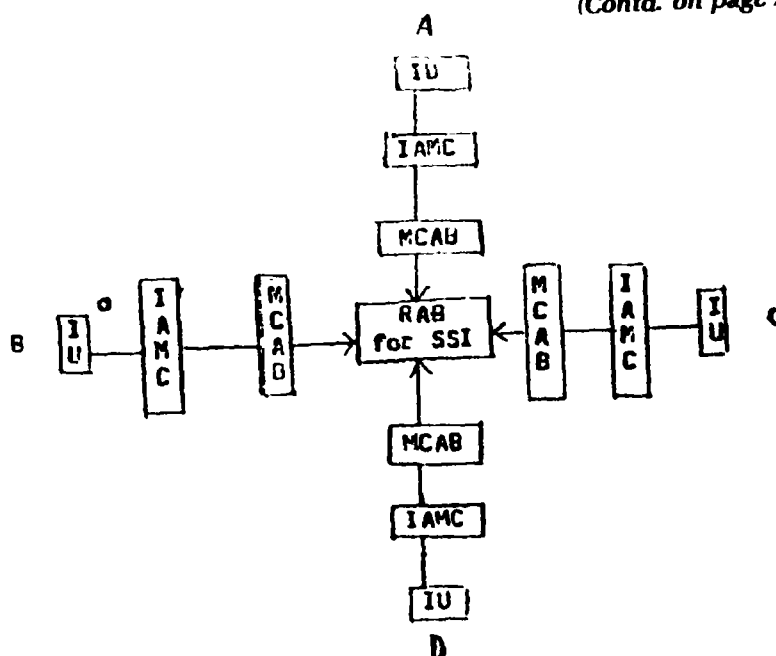
Exmperience has shown that no such cooperation can be implemented without active initiative and participation of the individual manufacturers. As individual manufacturers in the SSI sector are too pre-occupied with the survival of their units, it will call for tremendous pursuasive efforts to bring them into a forum of cooperation. Only through such efforts it may be possible to make them realise the benefits of cooperation This brings us to the question of evolving an appropriate frame-work for integrating product specific SSI units based on certain common needs programme. Needs of the small scale units in SAARC countries could be summarised as under :

- product and market information;
- provision for scarce resources;
- technological upgradation;
- training and development and
- market opportunities, i.e., future potential markets.

The government of each country in this region is aware of these needs and provided policy support to meet these needs. However, the government policies, institutions and incentives designed to foster the growth and interaction of SSI units seem to have not reached the grass root levels of SSI sector, It thus becomes an interesting and challenging issue of management to examine in-depth the current policies, institutions, industry associations in the SSI sector and evolve an alternative which will speed up the pace of cooperation among small scale industry units in individual country and at regional level. The issues that are crucial for creating such alternative are as follows :

- What roles should government, banks and research laboratories play in SSI sectors ?
- What are the overlapping areas between roles played by various agencies for promotion and growth of SSI ?
- How new technology to be developed for SSI units and who are to use it ?
- How to assess management and training needs of SSI ?
- How to avoid conflicting commercial interests of SSI which may come in the way of cooperation ?
- What should be the organisational set up from grass root level to national and regional apex level for fostering regional economic cooperation ?
- What are the steps that will be required for implementing regional economic cooperation in SSI sector ?

An attempt has been made to illustrate an organisational framework for this. Individual SSI Units (IU) in each country manufacturing specific items will have a cooperative body of their area, i.e., Industry Association in Member Country (IAMC) shown in the diagram and IAMC in each country will be represented in the member country apex body, i.e., Member Country Apex Body (MCAB) for all SSI items. MCABs in turn will be represented in the regional apex body for SSI, i.e., Regional Apex Body (RAB) for SSI.

(Contd. on page 23)

Kudankulam Atomic Power Project

D. Renganathan

THE Kudankulam in Tamil Nadu project is an Indo-Soviet joint venture for construction of a nuclear power plant consisting of two units of 1000 Megawatts each. In November 1988, an Inter-governmental agreement for cooperation in the construction of this power station was signed in New Delhi between India and the Soviet Union. The agreement lays down that the Soviet Organisation ATOMENERGO EXPORT will prepare a detailed project report based on the terms of reference mutually agreed upon, and present it to the Nuclear Power Corporation of India. A maximum basic cost has already been finalised and the actual figure would be indicated in the detailed project report. After approval of the project report by the Nuclear Power Corporation of India, ATOMENERGO EXPORT will submit a techno-commercial offer for construction of the plant on a turn key basis. Moreover, the Soviet Union has agreed to extend to the government of India a soft credit of around 3,200 million roubles at 2.5 per cent interest per annum to meet the cost of the nuclear power plant.

Kudankulam is located at the shore line near Kanyakumari. It has hard rock at reasonable depth with a very low seismic potential, which keeps the project safe from severe cyclonic storms, tidal waves and other potential dangers. It is spread over one thousand thirty-eight hectares of barren land without any habitation. There is no evacuation of people from the project site in Kudankulam or any of the surrounding villages.

The construction of reactors at Kudankulam will not in any way curtail the fishing activities of fishermen living nearby. There is no threat of any thermal pollution. The radioactive waste generation will also be very small, since the spent fuel is to be sent back to the Soviet Union. The discharge from the nuclear power plant will not pose any radiation hazard. The waste water from the plant will be segregated at source and sent to the Waste Management plant for treatment. The treatment methods include filtration, ion-exchange evaporation, chemical treatment, etc. After treatment, most of the radio active residues are solidified in cement and buried in leak tight underground concrete containers within protected area of the plant complex. The treated water is diluted with a large quantity of condenser water and then released into the sea.

The air from the plant will be filtered through special high efficiency filters and is then released through very tall chimneys. The discharged air containing minute quantities of active inert gases will be monitored continuously to ensure that pollution is well below the permissible limit.

The emergence of this atomic reactor has sparked off considerable apprehension in the minds of the people of Kanyakumari district and the residents on the border areas of Tirunelveli-Kattabomman district. The local people fear that a sizeable amount of water from the Pechiparai Dam, the only major reservoir in Kanyakumari district will be siphoned off for the Kudankulam project. Nucl experts say that there is absolut no fear to agriculture or drink water supply being affected.

Special Reactors

The proposed VVER type Reactors at Kudankulam different from Chernobyl react of RBMK type. The Cherno reactors use graphite as modera and boiling light water as coola It has been confirmed by numerous reviews all over world that the Chernobyl type accident cannot take place reactors which use light wa both as moderator and coolant

Although the Kudankul project will be executed or turnkey contract by the Sov Union, it is expected that it sub-contract the civil work, pip and miscellaneous erection w to Indian contractors, who require local staff for execut the work. There would also local participation in the suppl materials and services for constr tion of township and other infr tructure like access roads, pi fresh water pipeline and wa houses.

The first unit of the plant is lik to be commissioned by 1998 a the second unit by 1999. T power generated will be connect to the southern regional grid. T establishment of 2000 megawa of electrical generation capac will result in large scale electrifi tion of villages, development irrigation facilities, drinking wa supply, employment opportunit and improvement in quality of li

Courtesy– A

IAEA And Peaceful Uses Of Atomic Energy

Dr. P.K. Ayengar

The basic objective of the International Atomic Energy Agency at the time of its inception was to bring about international collaboration in nuclear energy which would be of interest to many countries. It provided a platform on which countries with varied background could interact for mutual benefit. It helped to demystify relebenefit. It helped to demystify relevant facts about nuclear science and technology. There was a positive touch of willing co-operation in its activities and the developed countries extended a helping hand to the developing countries. The IAEA can gain considerable strength by continued effort to recapture that atmosphere.

In addition to its many achievements which have been enumerated on various occasions and need no reiteration at this juncture, the Agency has also strengthened itself by a will to introspect and sit on judgement on our achievements and failures. Member countries have been able to discuss freely and raise issues which had no apparently easy answers. One issue which needs to be addressed again is that the benefits of this important technology have not reached as far as one would have liked. Nuclear technology was developed initially by the industrially advanced countries, but in spite of the fact that this called for high-tech expertise there are many areas where the developing and poor nations could benefit from. I personally feel that we need to give greater attention to this aspect.

Nuclear technology has mainly been developed by the advanced countries. The resistance to it, due to the issues connected with safety, has also arisen from the experience of the same countries. The informed intelligentsia and technical experts are convinced that the risks in this technology are minimal and its benefits are far reaching. The base level of science and technology available to us is so high that the challenges of this technology and its safe utilisation can be met with confidence. The developed countries also have a strong system of communication reaching out to all corners of the world. This communication system is available to those, who due to various extraneous reasons have been trying to spread misinformation, which casts shadows on the use of nuclear technology. There are several occasions when the views of the anti-nuclear group are relevant only to a particular zone of the world, but because they are heard all over the world their limited and at times biased opinion can affect the nuclear programmes of all the countries. The powerful media of communication are being effectively utilised by this small group of people but unfortunately this group has not shown enough wisdom to separate news and views from misinformation and propaganda. On the other hand, the better informed community of scientists has not been able to use this media with equal facility. There are certain countries which have neutralised the effect of this propaganda effectively. India is one such country. However, a stage has come where this community of scientists working together under the banner of IAEA should pool its resources and set the position right before it is too late. I strongly feel that IAEA should devote a larger fraction of its time and resources towards communication both with decision makers in all the countries and the general public. Obviously, this is a complicated exercise, because the target population varies considerably in its exposure to new technologies and perceptions. However, it is not an impossible exercise and with the expertise that can be pooled by the member nations, it is most certainly achievable. I am sure problems on this account being faced by different countries can be grouped and common solutions found

India's Role

India has continued to work vigorously on various aspects of the peaceful applications of nuclear energy, especially in the areas of nuclear power generation, use of isotopes in medicine, agriculture and industry and basic research. The performance of our power reactors has been improving of late. The Madras Power Reactors faced a problem of damage to flow baffles early last year It is a matter of satisfaction that these problems were resolved to a significant extent by innovative methods developed by Indian scientists and engineers and the reactors are now operating at 75% power level. The rectification works involved sophisticated techniques like remote viewing, robotics, advanced NDT etc. The Narora reactor, after overcoming its initial problems, is now operating at 150 MW. The

Prototype Fast Breeder Reactor (PFBR) is an important link in our programme in generating capability for better utilisation of our fertile material resources in the next century. The design work is progressing well. The 30 KW U 233 alloy fuelled reactor KAMINI is almost complete and functional tests are being conducted. The reactor and control system of PURNIMA III are also undergoing final checkups for reactor start-up. We expect a significant increase in the magnitude of the activities of the nuclear power sector during the years to come. With the commissioning of the Manuguru and Hazira Heavy Water Projects in a few months and the launching of work on new fuel production facilities in the near future, these inputs will also get suitably augmented. The use of Dhruva reactor for research and radio isotope production has increased substantially. A modified system for on-power loading of tray rods will enhance its availability.

The time has come when we should concentrate on making small research reactors and their installation in developing countries. This looks more feasible today when a larger number of countries in the world are in a position to contribute to this activity vis-a-vis the limited half-a-dozen countries which had the capability of setting up research reactors in the mid-fifties. The same is true of the manpower required for running these reactors as also for training local exporters for taking over operation and maintenance of these reactors. Once we succeed in setting up these small reactors in the developing countries, we would automatically create a base not only for basic research in nuclear sciences, but also for production and utilisation of radio isotopes in vital fields like medicine and agriculture.

An important thing to remember is that nuclear activities taken up by any country must be commensurate with its economic and technological capability. A growth which can be sustained over the years must be rooted in the available technological base. Otherwise the technology can give only short-term benefits. The developing countries have a better understanding of each other's problems and a time has come when IAEA should encourage even more vigorously the developing countries to help each other.

Future

The future of nuclear energy lies more in developing nations than the developed countries, many of which have reached near saturation point as far as exploitation of nuclear power is concerned. However, the developing countries require special international efforts to facilitate them in embarking on nuclear power programme. The recent events in West Asia have once again shown that the developing countries are more vulnerable to disruption in the supply of conventional energy resources. Technologies relating to small and medium sized reactors which could prove to be catalysts in ushering in nuclear programmes in developing countries need to be pursued in the framework of IAEA research and technical assistance programmes. Though IAEA had begun valuable and timely studies for establishing viability of small and medium sized reactors in developing countries, no concrete results have emerged so far.

For many developing countries, the application of radio isotopes in agriculture, medicine and industry, would be of immediate benefit. We have touched only the fringe of the immense possibilties that radio isotopes can offer. The IAEA Technical Assistance Programme has contributed in great measure in bringing the benefits of radio isotopes to a large number of developing countries. While there is a need to expand this programme more rapidly, it is disheartening that actual pledges and payments made to the Technical Assistance Cooperation Fund are less than the targets set. It is in this context that the long standing issue of financing of technical assistance from more regular and assured sources should be resolved expeditiously. The preparatory work relating to the establishment of a Regional Co-operative Agreement for Member States of Africa is complete. We hope that this agreement will make valuable contribution in fulfilling the needs of the countries of this region.

India remains a consistent supporter of the Technical Assistance Programme. It has been making sincere efforts to expand the cooperation activities within the framework of the Regional Co-operative Agreement. A Regional Training Centre could be very useful. This could perhaps be set up in a country like India.

While we have developed a tremendous bank of information and invested sufficient funds in the nuclear technology to make it safe and reliable, it is important to remember that there is still a lot of scope for new vistas in nuclear technology. It is important for us to do more basic research in problems associated with environment and safety. While waste management can presently be taken up in a safe manner, there could possibly be other ways of handling this problem, which have not been thought of so far. Similarly, with the vast bank of expertise generated by nuclear scientists and technologists we should continue our efforts in advanced fields and in exploring newer ideas. The community of nuclear scientists is well equipped for handling new ideas, because science and technology have moved hand-in-hand in the nuclear field. A few ideas for future work which come to mind are further studies in inherently safe reactor systems. Incorporating ideas such as passive residual heat removal systems, core characteristics to limit or prevent reactivity excursions, computerised system for improving monitoring of safety system availability and containment system with features to retain and remove fission products and trap aerosols need further inspection. New ways of handling

actinide waste need substantially higher inputs and encouragement by IAEA. India keeps this important aspect in mind and we have been able to make some significant contributions in some of the new areas like High Temperature Super Conductivity. We have not only developed some of the best material in tytarium barium-copper compound but also in thalium compounds. A large number of groups are working in India on basic and applied problems. Similarly, our contributions in cold fusion studies have been significant. Our extensive work on demonstrating the production of tritium in fusion cells has thrown new light on this phenonenon.

In the context of the fourth NPT review Conference we hope that the international community will address itself seriously to the dangers posed by the massive stockpiling of nuclear weapons by the nuclear weapon states. There is, of course, a perceptible movement away from confrontational positions and a constructive dialogue has been started. In our view, the INF Treaty is notable not only for the few thousand missiles that are to be dismantled as a result of its provisions but also for the historical beginning it made in erasing a complete class of weapon system. The misplaced faith in the relevance of nuclear weapons for keeping peace and enhancing security needs should be speedily discarded. India had proposed an Action Plan for a nuclear weapons free and peaceful world order. It called upon the international community to negotiate a binding commitment to general and complete disarmament under effective international control. We believe that the Action Plan is still very relevant.

India's Offer

India, on its part is ready to play its role to help the cause of nuclear energy in general. She has accumulated valuable experience in building and operating small research reactors. We are willing to share our experience with other developing countries in such areas as manpower training, consultancy services etc India can also supply small research reactors that can become nuclei for manpower training in the developing countries. India is now poised to help the developing countries with several nuclear related technologies, radio isotope production and utilisation, setting up of small reactor and in many other areas in the fuel cycle.

The IAEA is the only international organisation that provides a forum for common planning and action for all of us whose mission is to spread the immense benefits that nuclear science has bestowed on mankind for universal prosperity. It should be our endeavour to strengthen this organisation so that it could achieve the objective as enshrined in its Statute. As a founder member of the IAEA, India is well aware of the importance of attaining these objectives for the future of nuclear energy. □

The article is based on Dr. P.K. Ayengar's address the International Atomic Energy Agency General Conference held in Vienna.

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Sericulture For Tribal Development

S.K. Panda

For tribal development, formulation of suitable schemes is one of the most important points. In view of the self-sufficient nature of tribal economy, any trade or profession new to the tribal culture has been found to be of relatively poor acceptance to the tribals. As such emphasis is usually laid on land and forest-based activities in preference to other tertiary sector schemes like service and business. Sericulture, being an agro-based rural industry, has found easy acceptance by the tribals.

TASSAR sericulture is practised by the tribals of Orissa from immemorial. Rearing of tassar time silk worm in the *sal* and *assan* trees in the natural forest has been one of the main subsidiary occupations of the tribals living in Mayurbhanj, Keonjhar, Sundargarh, Dhenkanal, Sambalpur and Cuttack districts. Recognising the importance of tassar sericulture, the erstwhile ruler of the princely State of Mayurbhanj had raised *assan* trees in community land near the village for tassar rearing. These plantations are popularly known as Adapahis.

Tassar silkworm is reared in the forest. It has certain limitation in providing a steady return to the rearers. This problem has been aggravated due to depletion of host plants following denudation of natural forest. Unlike mulberry yarn/fabrics, tassar fabric has a limited market, which restricts the scope for providing higher income from tassar sericulture.

Mulberry sericulture was introduced in Orissa during the Sixth Five Year Plan with some Mulberry Demonstration Farms (MDF). It was intensified during the Seventh Plan and the benefits of mulberry sericulture was extended to the rearers at large.

The Project

With a view to providing benefit of mulberry sericulture to private farmers, a special project entitled, Bivoltine Sericulture Development Project (BSDP) was taken up by the Orissa government in 1987-88. The project envisaged raising mulberry plantation in 100 acres of private land over a period of four years, at an expenditure of over Rs. 427 lakhs. Details of the funding pattern is given in Table 1.

600 units of 1/2 Ac. rainfed, 300 units of 1 Ac. rainfed and 400 units of 1 Ac. irrigated patches were to be brought under mulberry. 180 tonnes of mulberry cocoons and 17 tonnes bivoltine silk yarn was targetted to be produced annually under the project by the end of the project period '90-91. In view of suitable agro-climatic factors and successful experimental rearing, Mohana and R. Udayagiri blocks under Parlakhemundi Tribal Development Agency of Ganjam district was selected for implementation of the project.

The project area was predominantly inhabited by the *Lanjia Soura* and *Kandhas* tribes. The socio–economic profile of ST farmers living in the project area is given in Table 2.

Podu or shifting cultivation was the main occupation of the tribals living in the project area. This is the primitive type of agriculture practised by the tribals by slash and burn method. Several development schemes have been implemented in the area for weaning away the tribals from this primitive method of cultivation and to settle them as agriculturists. The Soil Conservation Department had reclaimed 2138 acre waste land in the project area, out which 1979 acres have been disti buted to 152 families. The families were provided with a pa of bullocks and agricultur implements for cultivating tl reclaimed land. Landless trib families getting reclaimed was land have adopted agricultur practices. Citrus, Jack fruit ai mango have been found to popular among the tribals.

Tribal families living in tl area usually grow one crop in year during monsoon. Area und various crops in the project area given in Table 3.

The Tribal and Harijan Resear cum Training Institute, Bhubanesw conducted a socio-economic surv of the tribals living in the proje area in July 1981. Househo income and per capita income the tribals were found to be F 1528.15 and Rs. 311.56. The repo also indicated that as a result implementation of various depa

mental schemes on horticulture, animal husbandry etc. the average income went up by more than Rs. 104 (per household) and Rs. 12.70 (percapita) respectively over a period of 7 years.

Potential

The special mulberry project was started in the area from 1st April'87. The project was implemented by the State Tassar & Silk Co-op. Society with the technical assistance of the Central Silk Board and the State Sericulture department. The project has been implemented in three years by March' 90. Analysis of the major achievements and constraints under the project throws some light on the potential of mulberry sericulture in the development of Scheduled Tribes. The findings are of particular significance as the project has been implemented in the tribal areas of non-traditional States like Orissa, which is new to mulberry sericulture

772 beneficiaries have been motivated for taking up mulberry plantation in private land and rearing bivoltine silkworm in 3 years. 126 beneficiaries doing mulberry sericulture earlier have also been adopted under the programme. Majority of the beneficiaries are from Scheduled Tribes. The plantation has 444 No 1/2 acre and 454 1 acre units. Details of area planted and rearing done is given in Table 4

Income of individual beneficiaries covered under the project has shown appreciable increase The maximum income from 1 acre rainfed plantation has been Rs 6,414/-which is rather remarkable in a tribal area from an altogether new occupation. In the third year of the project, 94 rearers have gone in for 4 rearings. Details of income generated in the project area is given in Table 5.

Steady and sizeable income from mulberry sericulture has enabled the Scheduled tribe to seek better food and houses and acquisition of assets like radio, bicycle, better clothes and ornaments. Even though there has been some savings, it has remained marginal. The rearers' families have started realising the relative advantages of sericulture over shifting cultivation and raising millets

Women and children of the rearers family have been found to take active part in rearing i.e. plucking leaves, cutting them to size, cleaning beds etc. This has led to better utilisation of family labour.

Table 1

(Amount in lakh Rs.)

	Govt of Orissa share	*C S B. share*	*Institu - tional finance*	*Total*
Infrastructure	78 275	78 275	-	156 55
Beneficiary component	85 515	-	71 555 (Banks)	157 07
Reeling complex	11 383	—	102 447 (NCDC)	113 83
				427 45

Table 2

Particulars	*R Udayagiri Block*	*Mohana Block*
ST population	4883 (73.6%)	8704 (61 4%)
SC population	307 (4 6 %)	1488 (10 4%)
Others	1449 (21 8%)	4003 (28 2%)
Total	6639	14195
Homeless S T families	57 (1 1%)	99 (1 1%)
Land Holding of S.T. Families		
No land	1063 (21 8%)	1816 (20 8%)
UP to 2 5 acre land	2087 (42 7%)	4192 (48.2%)
2 5 to 5 acre land	981 (20 1%)	1802 (20 7%)
More than 5 acre of land	752 (15 4%)	894 (10.3%)
S.T. Families Doing Shifting Cultivation		
Fully dependent on shifting cultivation	1457 (29 8%)	2117 (24%)
Partly dependent	2620 (53 7%)	4633 (53%)
Literacy		
Percentage of literates	12 65%	7.67%

Source Universal Bench Mark Survey conducted by THRTI, Orissa

Table 3

Crop	*Mohana block*	*R Udayagiri block*
Paddy	2465	1500
Ragi	1782	1500
Maize	2375	500
Niger	3855	800
Mustard	—	800
Millet	—	483
Pulses	—	500
Total	10 477 ha	6083 ha.

Table 4

Year	Area Planted In Acre	No. of Beneficiaries covered	Cocoon harvested (in Kg.)
'87-88	106	135	2,076
'88-89	379.5	496	3.077
'89-90	115.5	141	15.499
	676	898	20,652

Table 5

Year	Sale of cocoon		Sale of cutting		Wage labour	
	No. of Ben.	Amt.	No. of Ben.	Amt.	No. of Ben.	Amt.
'87-88 & '88-89	295	Rs. 1.80 lakh	57	Rs. 0.07 lakh	631	Rs. 12 13 lakh
'89-90	632	Rs. 7.97 lakh	87	Rs. 0.19 lakh	637	Rs. 3.93 lakh

Problems

A number of constraints have surfaced to implement the project. No irrigated land was available for taking up mulberry. As such, the target for raising 400 acres of irrigated mulberry had to be abandoned. Irrigation potential of the area is poor as the water table is relatively low. Besides, families having some irrigated land have not taken up mulberry in the irrigated land. This appears to be mainly becuase of the fact that mulberry sericulture is new in the area and the farmers keep their irrigated land for food crops. Only marginal and reclaimed land was taken up under mulberry in the initial stages. It is expected that after mulberry sericulture gets established in the area and the farmers are sure of getting better return, they would take up mulberry plantation in their irrigated land in preference to paddy and other crops. The food grain supply position is also required to be fully established.

Most of the beneficiaries covered under the project are from economically weaker categories. More than 95% of the beneficiaries are covered under various antipoverty programmes such as the Economic Rehabilitation of the Rural Poor (EERP) implemented by the state government, Integrated Rural Development Programme (IRDP) with 33 to 50% subsidy and schemes of the Tribal Development Agency. 24 beneficiaries (3%) have been covered under progressive farmers schemes of the Central Silk Board, under which Rs. 5,000/- was given as subsidy per acre of plantation. The beneficiary component of the project has been highly subsidised. While introducing any new programme in a tribal area, such incentive is essential for making the scheme acceptable to the beneficiaries. Because of high subsidy, involvement of the beneficiary in the programme is relatively low which is likely to go up with their getting sizeable income on a continuous basis. In view of suitable agro-climatic factors, only bivoltine race of mulberry silk worm is being reared under the project.

Cattle grazing has been found to be one of the important difficulties in implementing the project. As per the local customs, the tribals, confine their cattle only for the rainy season, when they raise the seasonal *Bagad* crop. After harvest, the cattle, being let loose, pose a real menace to mulberry plantation. The scheme has provision for fencing but the fence is found to get damaged and need annual maintenance. Raising barbed wire fencing can provide permanent solution but it is very costly. The only solution to the problem lies in involving the benficiary and in more number of benefiaries taking up plantation in compact patches. Besides, suitable type of green fencing is required to be developed. Thorny and fast growing species are required to be developed for providing green fencing. It would be of great help in sustaining mulberry sericulture in tribal areas in general.

Under the project, one demonstrator for each 50 acres of plantation, one technical inspector for each 250 acres of plantation and one production officer for each 500 acres of plantation have been provided for technical supervision. One Deputy Project Officer is based in the project area for overall supervision. The project area is prone to malaria. Notwithstanding these constraints, the staff members have put in good work which has led to successful implementation of the project. They have been posted under the project up to 31.3.91. As such they suffer from insecurity which is affecting their zeal and committment. In the initial years, all major technical aspects like preparation for raising plantation, prevention of disease etc. are being done by the extension staff. The rearers have been trained both locally and sent to Karnataka on study tour. This has generated interest among the rearers.

Rearing House

Construction of rearing house and supply of rearing equipment is another important area of concern. There are instances of

beneficiaries and staff being harassed by the Forest Department officials. However this problem was overcome by intervention of senior officers. In view of restriction on use of wood for forest conservation alterative building material and rearing equipment are required to be evolved for overcoming this problem.

Marketing of cocoon produced in the project is another problem. At the initial stages, the apex Co-op. Society implementing the project is providing marketing support. Reelable cocoon is being purchased at the of = Rs. 55/- per kg as against Rs. 35/- per kg envisaged in the report. Construction of one reeling complex with 36 basin has started under project. However development of skill in reeling and twisting has been found to be rather slow. It is interesting to note that eventhough the State has good demand for silk yarn (State consumption of silk yarn is about 30 MT per annum), marketing at cocoon stage has become a big problem. In the absence of irrigated mulberry plantation, only 4 crops are being reared in the area. As a result, any filature unit to come up in the area is required to have adequate arrangements for storing the cocoon for continuing operation throughout the year. Under existing conditions, it would be difficult to replicate units similar to ones in Ramnagaram area of Karnataka, where supply of cocoon is assured round the year. To overcome this problem, adequate working capital is required for the reeling units for purchasing and storing cocoon, without which the unit will not be viable. Stiffling of cocoon is another area which requires appropriate technology. Even though hot air stifflers have been provided in the area, there are difficulties during peak seasons due to disruption in power supply. Fuel efficient wood-based country stiffler, similar to the Chinese model is required to be developed for overcoming this problem. The Central Silk Board is having facilities for reeling training at DCTC, Koraput. The training duration is only two months, which is inadequate for imparting required skill. The training period is required to be extended. Similarly twisting of silk yarn is to be developed for fetching a good price for use of bivoltine silk yarn as warp. Improved filature unit of Karnataka Silk Industries Corporation (KSIC) and private filature of Maruti Goldstar, meant for reeling mainly bivoltine cocoon are reportedly going idle due to non-availability of bivoltine cocoon. Extension of marketing facilities at reasonable rates by these organisations would be of great help to non-traditional areas particularly in the initial stage, till necessary skill in reeling and twisting is developed locally.

As per recommendation of the Central Silk Board for non-traditional States, rearing of only bivoltine race has been taken up under the project. The main arguments for this are the technical superiority of bivoltine silk and the difficulty in changing over to bivoltine, in case multivoltine is introduced first. Rearers of the project area secured a relatively high price during '89-90 by sale of September/October harvest as seed cocoon to West Bengal. However, there are constraints in marketing bivoltine cocoon as seed cocoon on a large scale due to the uncertainity in external demand and difficulties in transporting seed cocoon over long distances from a non-traditional area. In view of constraints in marketing seed cocoon and inadequate demand for reelable cocoon locally, a section of the rearers are getting disillusioned about the rates. This problem can be overcome only with development of reeling in the area.

On the basis of a mid-term appraisal of the project, extension of the project has been recommended upt to '94-95. 1500-acre additional area would be covered and the project would be extended to the two adjacent blocks. The project would also be reorganised on the lines of the ongoing National Sericulture Project (NSP). This has been referred to the Central Silk Board for approval by the State government. Experience of implementing the special mulberry project in the tribal areas of Ganjam district indicates that mulberry sericulture is one of the potential means for the development of Scheduled Tribes. The constraints faced are typical to introduction of any new scheme in a non-traditional area. These constraints are expected to be overcome by clear understanding of the problems and taking pragmatic steps. □

The author is Managing Director State Tassar and Silk Co-operative Society, Orissa.

(Contd. *from page 15*)

A, B, C, D in the above diagram dennote four different countries of the region. The illustration reveals the management inputs required for making it operational

Conclusion :

It is apparent that small units of each country collectively can make a rich contribution to the region as a whole. What is needed is to develop them in a complementary manner so that collectively they can create balanced economic base in the countries of the South Asian region. Although regional economic cooperation in SSI is a feasible proposal, management professionals have to do enormous homework to develop appropriate and realistic models and put them to test before recommending the findings to policy makers. □

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Computerised Cyclone Disaster Simulator

Dr. S. Ramani

THE effective planning of organised human response at national and community level to the threat of approaching tropical cyclone is recognized as the vital step in converting warnings issued by meteorological services into highly useful public action to minimise loss of life and property damage. A cyclone can neither be avoided nor diverted from its destined track. But a preparedness plan must incorporate precautionary measures to save the people and livestock, undertake search and rescue missions, dispense medical aid, food and clothing, inoculate against disease, drain and disalinate submerged land, avoid overflowing of watercourses by opening locks and gates at appropriate times, bury the dead, restore essential services and prepare for hundreds of other decisions which involve managment of human and physical resources.

A critical factor in managing a potential disaster lies in the capacity to rapidly relocate resources as the nature of the threat changes from one vulnerable area to another, such as when an approaching cyclone changes its forecast course or intensity. In the normal confusion which surrounds a cyclone crisis, inability to take controlled well-planned action can cause immense loss.

Based on a systems approach, a disaster management decision-making game was designed by the author. This article deals with the game.

Simclone Game

The Simclone Game provides for a disaster relief management training exercise intended for those with pre-disaster planning and rescue and relief management responsibilities. The exercise also aims at illustrating the value of disaster preparedness. The computer programme on which the simulation is based is flexible and can be modified easily to represent different scenarios in scale and in the intensity of cyclone disaster.

The principal aim in cyclone disaster management is to assist the community to take the first coordinated steps to prevent or at least mitigate cyclone disasters. The objective in the broad field of pre-disaster planning is to promote the prevention, control and prediction of disasters. The activities are based on the following.

I. that disasters constitute a major development problem for most cyclone/disaster-prone coastal regions,

II that most disasters can be minimised, and

III that the most basic preventive measures are also the least expensive.

Cyclone disasters are events or incidents having destructive and social disorganization effects on the community. While these incidents may occur from natural forces, they have destructive impact on the land areas involved. In order to determine the effects of a particular disaster, the impact of the disaster is represented by mathematical functions in this game. This representation of damage is interacted with the distribution of human and cattle population, residential houses, irrigated land and resources in assessing disaster effects. Disasters are thus represented in this assuming that different di types are represented by dif funetions. When a tropical cy approaches a country, there of serious loss or damage a from wind, rainfall, river and storm surge.

The representation of da due to cyclone is a function accounts for size in terms c and wind velocity. The da are computed for a specific p the cyclone in a specific lo

Each group of participan assume that it has been cal to take over the managem an impending cyclone disa the coast of Tamil Nadu computerised disaster pla simulation model has the bilities to determine the eff a specific cyclone disaste given location and present effect to the administrato administrator receives infor regarding what is needed an is available so that he can al resources optimally to avoi of lives and damage to pro

The exercise is design examine mainly three pha disaster :

Phase I : Pre-disaster pha months before cy period). Players requested to take a of long-term dec based on their a ment of the nee each district. The ions to be taken in long-term planni resource requirem

Phase II : Pre-disaster during which pl receive meterol warnings. Players s assess the relief and gain ccontr resources and di situations.

Phase III : Post disaster p After phase II pl are in an emergency to begin depl

resources depending upon the damages report. This phase encompasses resource, relief and rehabilitation.

A further damage report is given at 24/48/72 hours after the cyclone crossing. This damage report contains: The (1) Number of people further dead. (2) infected, (3) deprived of basic needs and (4) recovered from injury.

SIMCLONE has been initiated by considering a serere cyclone with wind speed exceeding 115 Kmph The random tack of the storm is generated using past cyclone data. The cyclone alert warining is given every 12 hours, from a period of 72 hours before the storm crosses the coast, Once the storm is within the range of the radar, hourly warnings are given.

GAME-MODULES

The simulation Game is a dynamic flow model which concerns itself with the macro-level of detail. The model is structured into several modules with each module performing a specific function as implied by the name of the module and representing the disaster system and response to allocations. They are Resource Allocation, Transport, Evacuation, Shelter supplies, Disaster Effects, Scientific Game, and Deprivation modules.

The disaster region (Coastal districts of the country) is divided into a number of areas (sub-districts) Each coastal sub-district has got a number of cyclone shelters, called primary shelters exclusively constructed to accommodate people from vulnerable areas during cyclone period. Other than these primary shelters educational institutions and public buildings, etc. are considered as auxiliary shetlers.

A sub-district is the basic unit of reference for all indexing and reporting. The data for each sub-district and shelter are : population, dwellings, (huts, tiled-roof and pucca houses) irrigated land and livestock. An inventory of resources and their classifieation has been developed in each sub-district.

A library of stored data and primary input serve as the foundation for model operation. This library contains population and other information, resource inventories and disaster represenation data.

The infrastructure of communication and road networks has been represented by matrices which form a two-dimensional array This implies that it is not possible to have more than one link of each type between any two sub-districts and from sub-districts to shelter. For example, there can be only one road between two sub-districts for one telephone link The model assumes that there are no direct links between non-adjacent sub-districts.

Resource Module

The major function of this module is to accept the decision of the administrators regarding the allocation of the resources. Resources, which consist of basic supplies (food, water, etc.), equipment such as transport, and teams of people such as rescue teams, repair teams, and medical teams, are allocated to each district and sub-district at the beginning of the game. The model allows these resources to be moved from one sub-district to another,j or to be allocated to specific teams

The inventory of the resources in each district is continually updated to reflect the movement from one sub-district to another, local production, consumption and allocation to specific teams. Some of the above functions are carried by other modules.

The module keeps an account of the resources according to the simulated time. Another function of the Resource Allocation Module is to calculate the cost of effective allocation of all resources to each sub-district, At the end of simulation, a report of total cost incurred by each sub-district due to allocation of resources by decision-makers is given.

Transport Module

The incremental flow of information passes from the Resource Allocation Module to the Transport Module. The Primary function of the transport module is to allocate the different types of vehicles to various consignments. Transport Module The primary tion Module for evacuation of people from vulnerable areas to shelters and to Essential Supplies Module for distribution of basic supplies from sub-district to shelters

In each sub-district different forms of transport are available e g. buses, trucks and road tankers, The model continously updates the total number of each type available in each sub-district. As a result of requests from decision-makers for commodities to be moved and the people to be evacuated, the module calculates the number of the vehicles needed an the time that will be taken for the journey including loading and unloading and random delay.

The decisions which require the movement of commodities and evacuation of people from vulnerable areas, are based on the number of trips of available vehicles.

After calculating the number of trips a vehicle made between two sub-districts and a shelter, the Transport Module also keeps an account of diesel consumed during one decision cycle (one simulated period).

Evacuation Module

The function of the Evacuation Module is (i) to evacuate the people from vulnerable areas to shelters or safer regions, when the disaster threatens and (ii) to rescue people and safeguard their property when the disaster strikes. The input information to this module comes from Transport Module in the form of number of trips of available vehicles to

evacuate people forcibly and from Resource Allocation Module in the form of budget allocated to voluntary evacuation (a resource), and rescue teams (another resource).

The forced evacuation in the sub-districts is based on the number of available troops of vehicles in the sub-districts and the rescue teams. The voluntary evacuation is related to the budget allocated to the sub-district Depending upon the allocation of money for voluntary evacuation, the material is prepared for public inforation. It is in the form of brochures, leaflets, posters, etc., and should be pitched at a popular level, making full use of illustrations and other visual displays techniques. In addition, advice to the public should be recorded on tape so that, as a tropical cyclone approaches, the advice may be broadcast repeatedly from all radio and television stations. The messages should be brief and free from any ambiguities.

The percentage of people evacuated voluntarily in a sub-district is a function of budget allocated and period of cyclone warning.

Shelter Supplies Module

The incremental flow of information passes from the Resource Allocation Module and Transport Module to the Shelter Supplies Module. The primary function of this module is that of determining the resource consumption or utility by deploying the allocated resources to various shelters

The decision-maker reviews the information made available to him and accounting for the ratio of resources available to resources required, allocates resources to those shelters most deficient in his judgement.

Disaster Effects Module

The major function of the Disaster Effects (DE) module is determination of disaster effects in terms of post-disaster effects. The DE establishes the initial conditions of the cyclone disaster, which represents the disaster areas and their status immediately (12 hours after cyclone crossing the coast). It computes and categorises the damages. These damages are affected population, homeless, dead, injured, huts destroyed and partially damaged, irrigated land damaged livestock dead an injured and damage to road communication networks.

Scientific Game M

The incremental information goes on from Allocation Module and Effects Module to Scient (86) Module. The primar of SG Module is that o ning the resource requ for earch sub-district. The functions is that of e further damages due to of resources after the po effects. The computatio module initially exar effective allocations of made by decision mak gives the availability of in each sub-district.

Deprivation Modu

This module is conce evaluating the success or the life support systems district. Using shortage n number of people de food, likely to be infect and recovered from computed.

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(13.81 per cent per annum), whereas in Rajasthan, with high growth rate of power supply, surface road and industrial credit, industrial growth was lower than the all India average.

Conclusion

Comparision of growth rates revealed that Haryana, Karnataka, Maharashtra, accounting for 39% and Maharashtra, accounting for 39% of industrial output of the economy, experienced by and large a uniform rate of growth (between 6 and 9 per cent per annum) during seventies and eighties. On the other hand, industrial deceleration is observed during eighties in Jammu and Kashmir, Kerala, Orissa, Punjab, Tamil Nadu, West Bengal. Together they have a relative share of 23% per cent of nation's manufacturing output. The remaining States, Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Madhya Pradesh Rajasthan and Uttar Pradesh experienced an increase in the rate of industrial growth in eighties over seventies. However, it is important to observe that, there are in all six states, viz., Assam, Bihar, Himachal Pradesh, Kerala, Orissa and Rajasthan which are not only suffering from low level of industrial output but also from low level of industrial growth. A deliberate policy alone may help to accelerate industrial output of these six states.

The study of growth industrial infrastructure over the period 1970-71 t revealed that the di growth rates of power surface road, and industr in different states do not in a significant measu some states experienced pronounced industrial than others. Hence, there to investigate the factors re for inter-state variation industrial output growt the variations in i infrastructure facilities.

The author i Dept. of Ec Karnatak U
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A Successful Experiment

Sylvester Lobo

"IT'S zero, "said the junior engineer. It's nothing, "added Vaidya Banwarlal Sharma attached to SWACH (Integrated Sanitation, Water, Guineaworm Control And Community Health Project) They were describing the agony of a guineaworm patient, 21-year-old Mahamaya Prasad, at Banoda village in Udaipur district Mahamaya, a school teacher, in the process of extracting a guineaworm from his foot had broken it. The part of the worm that remained within the foot had caused an abscess. Pus oozed out of the wound and Mahamaya had not slept for three days due to pain and fever. In fact, he was bedridden for 14 days. He had exhausted his sick-leave and had applied for leave without pay.

Some four years ago, a situation, like this, in either one of the three districts of Rajasthan, Udaipur, Banswara and Dungarpur, would have been just common place. No one would have raised an eyebrow That is what the junior engineer and Viadya Banwaralal meant when they said the pain suffered by Mahamaya was "Zero" and "nothing". They had seen worse cases of guineaworm infection, cases of unbearable pain and suffering leading to substantial economic and physical loss.

A Joint Project

"To counter situations like these on a war footing, SWACH was launched by Government of Rajasthan in consultation with the Central Government. Forty per cent of the cost of the project was provided by the Rajasthan Government, while 60 per cent by the Swedish International Development Authority through UNICEF, The project was started in Banswara and Dungarpur districts in 1986 and in Udaipur district in 1988.

The aim of the programme was to improve the quality of life of rural masses by controlling the incidence of guinea worm, diarrohea and other water-borne diseases, by supplying safe drinking water. The project also concentrated on health and hygiene education through schools, adult and non-formal education centres and health centres. "It was basically an experiment, an attempt to involve the people in community health", says Helen Patton, Project Adviser from UNICEF

As an experiment SWACH has succeeded tremendously The results speak for themselves In 1986, in Dungarpur and Banswara districts, there were 10,746 cases of guinea-worm infection, while in 1990, they have come down to a mere 700 cases. The figures for Udaipur district are 5,972 in 1988 and 450 for the current year. "A multi-face strategy was adopted to achieve these results," says Anil Bhandari, Assistant Director (Technical), at the Project Office, Udaipur. "Conversion of 5,900 step-wells into sanitary draw wells was given top priority. Next the aim was to install 8,000 hand-pumps to provide safe drinking water"

Decentralised Decisions

SWACH has been able to achieve these targets, making it a typical case-study of a success story brought about by dynamic and determined leadership and availability of adequate funds and equipment.

In SWACH, decision-making is decentralised to a great extent Project officers in each district are given freedom to take their own decisions to achieve targets K L Bhandari, Project Officer in Banswara district, narrates how he had to plan many months in advance to install two hand-pumps in Mandli, a tribal village 25 kilometres away from Banswara. The shortest route to reach the village is through a boat-ride. But country boats do not have the capacity to carry tube-well rigs. So Bhandari had to take the longer route along the edges of the hill to haul the rigs to the villages. The rigs took two full days to reach their destination. Since monsoon was fast approaching, they could not remain in the village too long, because taking them back would have posed a problem

So the tube-wells had to be bored quickly and efficiently. Bhandari was able to achieve the same with the help of Public Health Engineering Department of the Rajasthan Government, which works in co-ordination with SWACH with respect to tube-wells and hand-pumps

"The hand-pumps have come as a boon to us", says Kuuli from Mandli village "Earlier, we had to climb the hill and go down to fetch a pot of water from the river, which used to take a lot of our time and energy We are free from this burden forever. Moreover, what makes us feel proud about these hand-pumps is that the government officers consulted us about locations before installing them in our village".

Village Contact Teams

Going by one of its general objectives, namely, "to promote community involvement and self-reliance in planning, implementation and maintenance of drinking water supply", SWACH gave top priority to form Village Contact

Teams (VCT)n in every district and launch intensive awareness campaigns. "During these campaigns, we make door-to-door contact with the villagers, informing them about the safe source of drinking water, water-borne diseases and safe storage of drinking water. We also identify possible sites for new hand-pumps in consultation with village women", says Huki, a member of the VCT from Uppergaon village in Dungarpur

To communicate their message effectively, VCTs also stage cultural programmes towards the end of the day, when all the villagers gather at the village square or school. Through local songs and street theatre, the message of guinea-worm eradication, safe drinking water and environmental sanitation is pressed home.

"We like the way the VCTs come to our village and inform us on what we must do and what we must not do. Earlier in our ignorance, we used to drink infected water and guinea-worms used to immobilise us atleast for three to four months in a year. Some of us have become crippled because of the disease. After our step-wells have been converted, we have not faced the problem", says Ohja Vakta, of Jambuda village in Udaipur district.

Ayurvedic Doctors

To tackle the guinea-worm cases still prevalent, SWACH has distributed postcards all over the three districts. Whenever a patient is identified, all that the villagers have to do is mail the postcard to SWACH with details of the case. Vaidya Banwarlal Sharma at Udaipur and Vaidya Dwarkanath Pandya at Dungapur, who are attached to SWACH, rush to these patients and extract the worms from the patient's body. "The two Ayurvedic vaidyas have rendered yeoman's service over the years to alleviate the pain and suffering of patients as allopathic medicines do not offer much succour to guinea-worm patients," says Suman Bhatnagar of UNICEF.

From Ayurvedic vaidyas to hydro-geologists, SWACH employs every professional input to make the project a success. The hydro-geologist's job is to identify the appropriate sites for digging tube-wells in consulation with the villagers. "We go to a village, where there is a need for installing a hand-pump with a proposed list of sites given to us by the VCT," remarks Subhash Audichya, a hydro-geologist working with SWACH in Udaipur. "We do a geo-physical survey using sophisticated instruments at all the sites and decide on convenient spots."

"Hydro-geologists are treated as heroes in the villages," says Khumat. People run after them to get a hand-pump installed at a site, which is convenient and nearby." One does not grudge this honour bestowed on hydro-geologists, but there are others as well in SWACH, who carry out equally heroic tasks. These are the village "animators." As grass-root level functionaries, animators are the core persons, who initiate and mobilize community support for project activities. "They are an organic link between the project and the community," says Suman Bhatanagar. The imaginatively conceievd concept of an animator has a pragmatic touch as well. Only women have been chosen as animators as the project envisages to work especially with women on issues related to health, sanitation and drinking water.

An animator is chosen from the community itself-one with a little education, some leadership quality and possibly a little experience of working in the VCT. "I have been working as an animator in pur district since 198 Savitha, a physically hand woman. "I like my work b can earn my living and some useful work, as I am to do any other physical Savitha is one amo enthusiastic women an working for SWACH, who concern is not money but to do something for their "Each animator works wi villages individually population of 1,500 t depending upon the na habitation," says Sohan D Project Officer at Du District. "The selection pr so designed that the anima identified according to th and requirements of the he remarks.

There is another gr women, who are the hand-pump mechanics. animators, the concept of hand-pump mechanics innovative one and is he keep the break down rate pump in SWACH district minimum. When this conc first suggested by K.L. Bl Project Officer of Banswara he received a lukewarm r to it. Questions were ra how women could handl that was so far men's lot questions have no releva more. Even after SWACH i down, it will be these and prompt women han mechanics and village ani who will bring back memo project which has ef changed the quality of lif villages of Udaipur, Bansw Dungarpur in Rajasthan.

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